
Appendices

Appendix A: Relevant Chemical Mercury Compounds, their Absorption, and Toxicity

Summarized from Bernhoft (2012), Clarkson and Magos (2006), Kamath et al. (2012), Liu et al. (2008), Miguel et al. (2014), National Research Council (2000), Park and Zheng (2012), Rooney (2014), and Ye et al. (2016).

Form of Mercury	Absorption by the Body	Distribution in Organs	Excretion from the Body	Known Toxicity
I. Elemental / metallic mercury (Hg)				
As <i>liquid</i> (Hg) (partially vaporizes at room temperature)	Poor gut absorption, less than 0.01%	Brain, kidneys	Largely excreted as mercuric ions (Hg ⁺⁺) through feces	Toxicity depends on the condition of the mucous membranes and the level of gut absorption.
As <i>vapor</i> (Hg ⁰)	Readily and extensively absorbed (80%) in the respiratory tract	Oxidizes in the body, combines with proteins, settles, for example, in lungs, brain, and kidneys Can enter brain through olfactory pathways	As Hg ⁰ exhaled in breath, excreted in sweat, and saliva, and as mercuric ions (Hg ⁺⁺) in feces and urine	Inhalation might cause cough; inhalation exposure (e.g. through heating cinnabar) provides direct pathway to brain; also fat soluble, thus rapidly distributed throughout the body; crosses blood-brain and placental barriers and thus causes neurotoxicity and impact fetal development; can remain in the brain twenty years or more; low-level exposure causes nonspecific symptoms such as gastrointestinal disturbance, fatigue, anorexia, weight loss, irritability; chronic exposure has an accumulative effect and can lead to atherosclerosis, myocardial infarction, hypertension, stroke, depression, anxiety, excessive anger, decreased immunity; above 100 µg/L: neurological symptoms: tremors, memory loss, delayed reflex, increasing shyness, depression, insomnia, personality change, respiratory distress, excess salivation; above 800 µg/L: fatal.

Form of Mercury	Absorption by the Body	Distribution in Organs	Excretion from the Body	Known Toxicity
II. Organic mercury compounds (bonded to a structure containing carbon) ¹				
1. <i>Methylmercury</i> (CH ₃ Hg ⁺) high concentration found naturally or through contamination in fish; causes Minamata disease	Easy absorption through the gut (≥95%); through the respiratory tract (≈80%); also through skin; gut bacteria can convert methylmercury into less toxic inorganic mercury	Spreads throughout all tissues within thirty hours, readily crosses the blood-brain barrier to enter the brain, also enters the kidneys and liver, placenta, fetal brain, peripheral nerves, bone marrow	90% excreted to the feces via bile, less than 10% through urine, ≈20% in breast milk	Highly toxic; forms in the environment when inorganic mercury reacts with bacteria; potentially affects any cellular function; parts are demethylated to inorganic mercury in brain; damages the central nervous system and brain (paresthesia, ataxia, dysarthria, and loss of vision) and fetal brain development; can lead to death.
2. <i>Ethylmercury</i> (C ₂ H ₅ Hg ⁺)	Similar to methylmercury, but once absorbed rapidly changes to inorganic mercury	Spreads throughout all tissues similar to methylmercury	Largely excreted via feces, similar to methylmercury, but it is excreted faster than methylmercury	Mechanisms of toxicity are unknown; presumably damages the central nervous system, similar to methylmercury; rapidly releases inorganic mercury and damages kidneys; has different metabolism from methylmercury.
3. <i>Dimethylmercury</i> (CH ₃) ₂ Hg, or C ₂ H ₆ Hg liquid, lipid-soluble	When inhaled absorbed through the respiratory tract (≈80%); through the gut (≥95%); absorbed also via the skin	Can easily be absorbed through latex gloves and skin	When ingested around 90% is excreted through feces and less than 10% through urine	Metabolizes to methylmercury in the body by crossing the blood-brain barrier; may cause dyspnea, nausea, and vomiting; long-term exposure can lead to tremors, psychological disturbances, salivation, fatigue and insomnia, diarrhea, blurred vision, tremors, paralysis, and memory loss. Absorbing small amounts proved fatal in several cases.

¹ Note: Urine concentration levels do not reflect organic mercury concentration levels of the body because of high feces excretion.

Form of Mercury	Absorption by the Body	Distribution in Organs	Excretion from the Body	Known Toxicity
III. Inorganic mercury compounds (not bonded to carbon)				
	Generally solid and non-volatile at room temperature	Largely in kidneys	Urine, feces "A small portion of absorbed inorganic mercury can be reduced in tissues and exhaled as mercury vapor" (Liu 2008, 813).	Toxicity depends on their solubility. Mercury salts are quite corrosive and thus damaging to the intestinal tract and kidneys; can cause skin discoloration; they are not lipid soluble and do not cross blood-brain barrier. Elemental mercury, ethylmercury, and methylmercury are metabolized into inorganic mercury in the brain; can bond with selenium in cells and become inert / non-toxic. However, inorganic mercury is not methylated into methylmercury in tissues "to any significant extent" (Clarkson and Magos 2006, 628).
1. <i>Mercurous salts</i> (Hg ₂ ⁺⁺ , Hg ⁺) e.g. mercurous chloride (Hg ₂ Cl ₂ , calomel)	Largely through the respiratory tract; through skin (3–4%); through the gut (2–10%)	Kidneys	Urine, feces	Poor water solubility; absorption is slower than that of mercuric chloride; does not readily cross blood-brain or placenta barrier. Calomel (was used as teething powder in children) can cause pink disease, sweating, irritability, and fatigue.
2. <i>Mercuric salts</i> (Hg ⁺⁺) e.g. mercuric chloride (HgCl ₂ , "corrosive sublimate"); e.g. mercury(II) oxide (HgO)	Through the gut; absorption increases with prolonged exposure (7–15%); through inhalation of HgCl ₂ aerosols; through skin (2–3%)	Largely in kidneys, also in liver, spleen, placental, fetal tissues	85% is excreted in feces; also through urine, sweat, tears, saliva, breast milk; also exhaled as Hg ⁰ vapor	Abdominal pain, bloody diarrhea, shock, renal failure. Corrosiveness causes internal ulceration. Eating 1–4 grams is fatal for adults (used in suicide). Found in some skin-lightening cream; hardly crosses blood-brain barrier, but can get into the brain through methylation; used in the past as preservative, in photography, to treat syphilis, and disinfect wounds.

Form of Mercury	Absorption by the Body	Distribution in Organs	Excretion from the Body	Known Toxicity
3. <i>Mercury(II) Sulfide</i> (HgS) such as in the form of cinnabar (of which more than 96% is α -HgS); HgS exists in two phases (α and β)	Solubility is only 2.9×10^{-26} g/100ml water; thus gut absorption is poor, less than 0.2%; is not metabolized to methylmercury in the gut	Of total renal accumulation 10% is distributed in the brain and 5–50% in the liver	Urine, feces	Most inert form of mercury compounds; 1,000 times less tissue accumulation than methylmercury; renal toxicity might occur only after long-term use or with high dosage intake (1g/kg); HgS can cause toxicity when transformed by heating through fume inhalation (e.g. roasting <i>chokla</i>): Hg ⁰ vapor and sulfur dioxide (SO ₂) fume inhalation can cause cough, breathing problems, skin and eye irritation.
3a. <i>red cinnabar, vermilion</i> (α -HgS) e.g. <i>rasasindūra</i> in Ayurveda	Only very slightly soluble	Kidneys	Urine, feces	Largely non-toxic since barely soluble in water; α -HgS can turn into β -HgS through heating and back to α -HgS after cooling; red α -HgS is stable at lower temperature.
3b. <i>black metacinnabar</i> (β -HgS) e.g. major component of <i>tsotel</i> in Sowa Rigpa, <i>kajjalī</i> in Ayurveda	Only very slightly soluble	Kidneys	Urine, feces	Largely non-toxic since barely soluble in water; black β -HgS is stable at higher temperature.

Appendix B: *Tsote/* Manufacture Events at the Men-Tsee-Khang in Dharamsala (1982–2014)

Unless otherwise indicated this data is based on a table in Tibetan kindly provided by the Men-Tsee-Khang (MTK 2014). Names of physicians who only appear in this table, but not in the book, have not been included in the glossary. The Wylie transliteration of their names has thus been included in this table.

No	Date	Amount made	Leading physician	Tibetan physicians taking part in the event	Notes
1	April 28, 1982 March 28 to May 15, 1982 (MTK 1982, 2)	60 kg	Lamenpa Tenzin Chödrak	Lamenpa Jamyang Tashi [of Tsona], Tendzin Namgyel, Jampa Sönam (Byams pa bsod nams) alias Lhawang la (Lha dbang lags), Yeshe Sonam (Ye shes bsod nams), Pema Dorjee, Tsewang Tamdin, Namgyal Tsering, Lobsang Chöpel Phagri, Pasang Yonten (see also Dawa Ridrak 2003, 411/14–24). Tupten Gyeltsen [Toding Rinpoche] took part as an assistant. ¹	Nine physicians and around eleven staff members took part. It took four years of preparations to gather about one hundred necessary ingredients and to make the pots and implements (MTK 1982, 2). They used dung and coal fires to boil the mercury. Physicians received the transmission of Kongtrul Yönten Gyatso's <i>tsotel</i> text (1986) from Lamenpa Tenzin Chödrak. The event was partially sponsored by the Fourteenth Dalai Lama and carried out at his residence. <i>Tsotel</i> was consecrated during a <i>mendrup</i> ritual with the Fourteenth Dalai Lama present on April 28, 1982 (Kloos 2012, 198). With the <i>tsotel</i> they manufactured Rinchen Drangjor, Rinchen Ratna Sempel, Rinchen Mangjor Chenmo, and Rinchen Tsodru Dashed (MTK 1982, 2). Following the Dalai Lama's wishes, Yeshe Dhonden and Ama Lobsang Dolma Khangkar were invited to support the precious pill preparations, but could not attend (Sonam Rinchen 2009, 56/18–57/5).
2	July 16, 1987	63.840 kg	Dr. Tendzin Namgyel, head of Pharmacy Department	Namgyal Tsering, Penpa Tsering, Tenzin Deche (Bstan 'dzin bde byed) (see also Dawa Ridrak 2003, 411/25–28).	Three physicians and eight staff members worked for one month (MTK 2011a, 5). The gas stove was introduced to better regulate the heat when boiling mercury (Kloos 2010, 86).

1 Dr. Choelothar, personal communication, Dharamsala, December 7, 2012.

No	Date	Amount made	Leading physician	Tibetan physicians taking part in the event	Notes
3	1994 (Dawa Ridrak 2003, 411 /29; MTK 2014) May 21, 1993 (Choelothar 2000, 106/10)	110 kg	Lamenpa Tenzin Chödrak	Lhawang-la (Lha dbang lags), Chöying Püntso (Chos dbyings phun tshogs), Tupten Gyeltsen [Toding Rinpoche], Jamyang Tashi, Dawa Ridrak, Namgyel Tendzin (Rnam rgyal bstan 'dzin), Ngawang Déchen (Ngag dbang bde chen), Choelothar, Pasang Püntso (Pa sangs phun tshogs), Nyima Gyeltsen (Nyi ma rgyal mtshan), Könchok Döndrup (Dkon mchog don grub), Kelzang Wanggyel (Skal bzang dbang rgyal), Tséring Dorjé (Tshe ring rdo rje), Shédrup Tséring Wanggyel (Bshad sgrub tshe ring dbang rgyal) (see also Choelothar 2000, 106/12-107/3; Dawa Ridrak 2003, 411/29-412/7).	Fourteen physicians and thirteen staff members worked for three months (MTK 2011a, 5). Eleven of the participating physicians were from the eighth batch that graduated in 1994. ²
4	April 5, 2001	105.4 kg	Dr. Namgyal Tsering, head of Pharmacy Department	Jamyang Tashi, Tenzin Thaye, Pasang Püntso (Pa sangs phun tshogs), Kelsang Wanggyel (Skal bzang dbang rgyal), Dawa Ridrak (see also Dawa Ridrak 2003, 412/8-17).	Five physicians and twenty staff members completed making <i>tsotel</i> in more than one month (MTK 2011a, 5).

2 Dr. Choelothar, personal communication, Dharamsala, December 7, 2012.

No	Date	Amount made	Leading physician	Tibetan physicians taking part in the event	Notes
5	April 17, 2008	115.873 kg	Dr. Jamyang Tashi, head of Pharmacy Department	Toding Rinpoche [Tupten Gyeltsen], Tenzin Thaye, Lobsang Soepa (Blo bzang bzod pa), Ngawang Soepa, Jikmé Gendün ('Jig med dge 'dun).	Five physicians and twenty staff members completed the manufacture of <i>tsotel</i> in forty-four days (MTK 2011a, 5).
6	September 12, 2011 (15th day of 7th Tibetan month) to October 26, 2011 (MTK 2011a, 6)	125.975 kg	Dr. Jamyang Tashi, head of Pharmacy Department	Ngawang Soepa, Lobsang Soepa (Blo bzang bzod pa), Tashi Tendzin (Bkra shis bstan 'dzin), Jikmé Gendün ('Jig med dge 'dun), Penpa (Spen pa).	Five physicians and twenty-three staff members completed the processing in forty-five days (MTK 2011a, 6). Dr. Jamyang Tashi consumed three grams of <i>tsotel</i> during a ceremony "to prove that the formulation is detoxified and has the effective potency" (MTK 2011a, 6).
7	November 12, 2014	138 kg	Dr. Jamyang Tashi, head of Pharmacy Department	Tenzin Thaye, Tashi Tendzin (Bkra shis bstan 'dzin), Chöden (Chos ldan), Penpa (Spen pa), Ngawang Gélek (Ngag dbang dge legs), Karma Tendzin (Karma bstan 'dzin), Tséwang Rindzin (Tshe dbang rig 'dzin), Ngawang Chödrak (Ngag dbang chos grags), Jampa Norbu (Byams pa nor bu), Ngawang Tséring (Ngag dbang tshe ring).	Ten physicians and twenty-seven staff members worked together.

Appendix C: Small-Scale *Tsotel* Events (1953–2008)

This table summarizes the small-scale *tsotel* manufacture events by private physicians and institutions (except the Men-Tsee-Khang), which are mentioned in this book and often not recorded in medical histories. The sequence follows the way in which they were introduced in Chapters 3 and 5. Names of physicians and places that only appear in this table but not in the book have not been included in the glossary. The Wylie transliteration of their names have thus been added to this table.

Date	Place	Amount of <i>tsotel</i> made	Physicians taking part in the event	Notes (sources referenced in Chapters 3 and 5)
Penden Gyeltsen (?–1962) and Lamempa Tenzin Chödrak (1924–2001)				
1953	Phagri Richung Potok, southwest of Lhasa	15 kg	Penden Gyeltsen and Lamempa Tenzin Chödrak with eight medical students of the Richung Potok Riteng Mentsikhang.	Sponsored by Tulku Dozher Tupten Lamzang, who kept most of the <i>tsotel</i> . Lamempa Khyenrap Norbu received two kilograms of <i>tsotel</i> . Lamempa Tenzin Chödrak received the “seeing transmission” at this event.
Tapkhé Püntsook, the Great Medicine Provider of Lhasa Mentsikhang				
1973 and 1974	Kongpo	?	Tapkhé Püntsook and others.	Tapkhé Püntsook first prepared the eight metals and eight minerals in Kongpo and later made <i>tsotel</i> at Yutok Shar (G.yu thog shar) in Lhasa. I only found this mentioned in Dawa Ridrak (2003, 411 / 11–13). Tapkhé Püntsook trained Tendzin Namgyel, who later took part in the <i>tsotel</i> events in Dharamsala in 1982 and 1987.

Date	Place	Amount of <i>tsotel</i> made	Physicians taking part in the event	Notes (sources referenced in Chapters 3 and 5)
Lamenpa Tenzin Chödrak (1924–2001) and Troru Tsénam (1926–2004)				
1977	In the upper valley called Drushitang (Gru shis thang), near the Powo Tramo labor camp, Kham	Approx. 19 kg	Lamenpa Tenzin Chödrak, Troru Tsénam, Tupten Shakya from Mentsikhang (Sman rtsi khang gi thub bstan sha'kya), Rindzin Wanggyel from Khyungpo (Khyung po ba rig 'dzin dbang rgyal), Yéshé Dorjé from Tölung (Stod lung ba ye shes rdo rje), Jamyang Lhündrup from Lhokha, and also the teacher Tségyel (Rgan tshe rgyal) and Tamkha Ngawang Gyatso (Tham kha ngag dbang rgya mtsho, 1930–2004), ¹ who came especially from Degé (Lappendum Lozang Lodrö 2006, 175 / 18–176 / 3). Tsultrim Sangyé, better known as Amchi Gege, and Karma Chöpel also took part.	They followed the <i>tsotel</i> manual by Degé Drungyig Gurupel (1986). Lamenpa Tenzin Chödrak passed on the “seeing-transmission.” The precious pills Rinchen Drangjor, Rinchen Mangjor, Ratna Sampel, Yunying 25, Jumar 25, Rinchen Wangril 25, and others were prepared.
Gen Rinpoche Rakdo Lobsang Tenzin (born 1956) and Khempo Troru Tsénam (1926–2004)				
1983 / 1984	Lhasa	Approx. 2 kg	Khempo Troru Tsénam, Rakdo Rinpoche, Lama Khempo Öser from Degé, his female student Do Dasel Wangmo, and Troru Tsénam's nephew Sönam Chimé.	Khempo Öser possibly sponsored parts of the event since he took most of the <i>tsotel</i> back to Degé. Jampa Trinlé at the Mentsikhang generously provided the equipment and ingredients. Troru Tsénam passed on the lineage and “seeing transmission.”

1 On Tamkha Ngawang Gyatso's life and his *tsotel* manufacturing see Yéshé Gönpo and Trangping (2005). Thanks to Tashi Tsering Josayma for sharing this reference.

Date	Place	Amount of <i>tsotel</i> made	Physicians taking part in the event	Notes (sources referenced in Chapters 3 and 5)
Three times between 1998 and 2008	CIHTS, Sarnath	1st: 6 kg 2nd: 5 kg 3rd: 5 kg	Rakdo Rinpoche, Dorje Damdul, assisting physicians and teachers, and CIHTS medical students.	As part of the Sowa Rigpa BTMS (Bachelor of Tibetan Medicine and Surgery) curriculum, <i>tsotel</i> was made to train medical students. Dorje Damdul observed part of the <i>tsotel</i> process at the Men-Tsee-Khang in 1987 while on a pharmacy internship. Zamyou Penpa Tsering participated as a student during the 2008 event at CIHTS. He is now departmental librarian in-charge cum Guest Faculty at CIHTS. At CIHTS they make the precious pills Rinchen Dangtso, Rinchen Mukkhyung Gugül, and Rinchen Ratna Gugül. The first was formulated by Khempo Troru Tsénam and the second and third by Rakdo Rinpoche.
Yeshi Dhonden (1927–2019)				
1985	McLeod Ganj, Dharamsala	?	Yeshi Dhonden, Lobsang Tenzin (main <i>menjorpa</i>), Chöphel Kalsang (assistant), and a few more amchi who have since passed away, in total around seven.	Yeshi Dhonden was trained in Lhasa by Lamempa Khyenrap Norbu. He also made <i>tsotel</i> in Lhokha, south of Lhasa, with Penden Gyeltsen and others.

Date	Place	Amount of <i>tsotel</i> made	Physicians taking part in the event	Notes (sources referenced in Chapters 3 and 5)
Amchi Tashi Yangpel Tashigang (born 1938) and Amchi Kunsang Kunphen (1924–2006)				
1985	Delhi	?	Amchi Tashigang, Amchi Kunsang Kunphen, and their assistants.	Amchi Tashigang received theoretical training from Karma Chöpel in Lhasa, who took part in making <i>tsotel</i> at Powo Tramo in 1977. He received practical <i>tsotel</i> transmissions from Amchi Kunsang Kunphen, who was trained by the medicine compounder Topgyel of Lhasa Mentsikhang. Previously, Amchi Kunsang made <i>tsotel</i> and precious pills, both at Nyalam and in Kathmandu. Nowadays, <i>tsotel</i> is made at Nyalam and precious pills at Kunphen clinic in Kathmandu.
Sampel Norbu Trogawa Rinpoche (1931–2005) and Nangrongshar Gen Rikdzin Lhündrup (1889–1986?)				
1954	At Trogawa House in Lhasa	“About the size of two high thermos flasks” (Stephens and Tsarong 1992, 12).	Nangrongshar Gen Rikdzin Lhündrup (teacher), Trogawa Rinpoche, three doctors from Chakpori Medical College, Lobsang Tsultrim, his student Lobsang Jampa (Blo bzang byams pa), Kunga Rapgyel from Drepung (‘Bras spungs kun dga’ rap rgyal), Jampa Gyeltsen from Gyantsé (Rgyal rtse byams pa rgyal mtshan), Könchok-la (Dkon mchog lags), and Trogawa’s attendant Purpa Gyurmé (Phur pa ‘gyur med) (Stephens and Tsarong 1992, 12).	Sponsored by Trogawa Rinpoche’s father. Nangrongshar Gen Rikdzin Lhündrup passed on the lineage and “seeing transmission”; he was present during the 1921 <i>tsotel</i> event in Lhasa and taught by Trékhang Jampa Tupwang.

Date	Place	Amount of <i>tsotel</i> made	Physicians taking part in the event	Notes (sources referenced in Chapters 3 and 5)
1994	Nee, Ladakh	1.1 kg	Trogawa Rinpoche, Amchi Lama Rigzin, Amchi Lama Wangchuk, Kairy Amchi Tsering Paljor, Amchi Katak, Amchi Karma, Amchi Padma Tsetar, Amchi Nawang Tsering, and Amchi Nawang Tarchin.	Sponsored by Amchi Lama Rigzin. Trogawa Rinpoche passed on the lineage to the amchi in Ladakh. They prepared the precious pill Rinchen Tsodru Dashed.
2002	Nee, Ladakh	Approx. 7 kg	Trogawa Rinpoche, Amchi Lama Rigzin, Amchi Lama Wangchuk, Amchi Katak, Amchi Karma, Amchi Padma Tsetar, and Amchi Ngawang Tsering. Amchi Karma and Kairy Amchi Tsering Paljor came for some parts of the process. Rinpoche's nephew, Teinlay Palsang Trogawa, was present.	Sponsored by Dzongsar Jamyang Khyentsé Rinpoche, who got most of the <i>tsotel</i> . The amchi in Nee received one hundred grams of <i>tsotel</i> , which they still preserve. They did not prepare precious pills but they did prepare the formula Dashed Dütsima, adding some of the <i>tsotel</i> and following Trogawa Rinpoche's secret transmission. Two of Trogawa Rinpoche's CTMI graduates, Tenzin Phelgye and Lhakpa Ngödrup, were also trained.
Amchi Wangchuk Lama (born 1942) and Kagyü Tendzin Norbu Rinpoche (1899–1959)				
1955	Drakkar Taso Monastery, Kyirong, southwestern Tibet	2–3 kg	Kagyü Tendzin Norbu Rinpoche, six to seven amchi including Amchi Wangchuk, who is the only surviving member of this group.	Sponsored and taught by Kagyü Tendzin Norbu Rinpoche. They prepared two types of precious pills, Rinchen Tsodru Dashed and Ngülchu Rinchen 18.

Date	Place	Amount of <i>tsotel</i> made	Physicians taking part in the event	Notes (sources referenced in Chapters 3 and 5)
Do Dasel Wangmo (b. 1928) and Khempo Troru Tsénam (1926–2004)				
1983 / 1984	Lhasa	Approx. 2 kg	Khempo Troru Tsénam, Do Dasel Wangmo, her Lama Khempo Öser from Degé, Rakdo Rinpoche, and Troru Tsénam's nephew Sönam Chimé.	Khempo Öser possibly sponsored parts of the event since he took most of the <i>tsotel</i> back to Degé. Jampa Trinlé at the Mentsikhang generously provided the equipment and ingredients. Troru Tsénam passed on the lineage and “seeing transmission.”
Ani Ngawang from Nyémo (c. 1930–2006) and Kyémé Rinpoche				
?	Chiu Tekcholing nunnery in Nyémo, west of Lhasa	?	Ani Ngawang, her lama, Nyimé Dorjé (alias Kyémé Rinpoche) from eastern Tibet, and others.	They prepared a <i>tsotel</i> -containing eye medication at her nunnery; students of Ani Ngawang and her teacher, Kyémé Rinpoche, apparently continued making <i>tsotel</i> at the Chiu Tekcholing nunnery in Nyémo.
Ama Lobsang Dolma Khangkar (1935–1989)				
Some-time after 1985 and before 1989	McLeod Ganj, Dharamsala	Approx. 300 grams	Ama Lobsang with Norbu Chöpel and her staff.	Norbu Chöpel's description of the event matched the method of making <i>kardül</i> , so we cannot be sure whether she made <i>tsotel</i> . Ama Lobsang manufactured Rinchen Ratna Sempel, Mangjor Chenmo, and Yuning 25 (which is made without <i>tsotel</i>). Later, she bought <i>tsotel</i> from Phagri, southern Tibet.

Appendix D: The *Collected Works on Mercury Formulations*

This appendix refers to Chapter 4 and my discussions with Tashi Tsering Josayma of the Amnye Machen Institute in McLeod Ganj on the process of assembling Tibetan works on mercury practices for the *Collected Works on Mercury Formulations* (Tashi Tsering, ed. 1986). He published these twelve texts while he was the head of the Tibetan Publication Department at the Library of Tibetan Works and Archives (LTWA). This appendix provides the titles, authors, and additional information, not previously published, on where he sourced these texts.

TEXTS 1–7 WERE PRINTED OFFSET FROM THE COLLECTION OF THE LTWA:

1. *Ril nag gsang ston gsal byed 'chi med nor bu* (1/1–20/4), by Zurkhar Nyamnyi Dorjé (1439–1475).
2. *Tshangs pa'i nor bu ril nag kun 'dus rkang gnyis bde ster dkar chag dag snang spro byed* (20/4–23/2), author unknown.
3. *Bi Sha rta zi ma'i sbyor ba khyad 'phags pa'i zab gnad gdans pa* (23/2–26/5), most probably by Dromrik Nenjor Yéshé (fl. seventeenth century)
4. *Rin chen ril bu gtong lugs khyad bcos mkhas pa'i phyag len* (26/5–29/6), author unknown.
5. *Dngul chu btso bkru chen mo za 'ching gi lag len gsar mdzod sbas pa'i lde mig* (29/6–49/3), most probably by Dromrik Nenjor Yéshé (fl. seventeenth century)
6. *Dngul chu btso bkru chen mo'i cha rkyen rin po che tsha 'dul chen mo* (49/3–57/1), author unknown.
7. *Rin chen dngul chu'i sbyor ba'i rtogs pa brjod pa'i gtaM/ ngo mtshar 'chi med grub pa'i rna rgyan* (59/1–121/2), by Mipam Namgyel Gyatso (1846–1912). This is an extremely rare text. It was never woodblock carved or published before 1986. Mipam's account describes how Kongtrül Yönten Gyatso conducted *ngülchu tsodru chenmo* at the behest of the governor of Nyakrong, Pünrapa Tsering Penden, in 1872 in Ganden Künkhyap Chödong of Nyakrong, Kham.

TEXTS 8–10 ARE FROM THE PRIVATE COLLECTION OF AMCHI LOBSANG TASHI FROM DROMO:

8. *'Bam bcos 'chi med tshe bum zhes bya ba gsang ba'i bcos yang zab bla na med pa* (123/1–144/1), by Karma Yéshé Pelzang.
9. *Rin chen dngul chu btso bkru zla shel ril bu'i sbyor ba drang srong rgyun shes kyi lugs khol du phyungs pa* (145/1–151/4), by Lamempa Orgyen Tendzin Gyatso.
10. *Rin po che'i sbyor ba'i gtso bo bdud rtsi bcud rgyal dngul chu btso bkru che mo'i lag len snying por dril ba phan bde'i gter mdzod* (153/1–301/4), by Lamempa Orgyen Tendzin Gyatso. Short title: *Phan bde'i gter mdzod*.

TEXT 11 IS FROM THE PRIVATE COLLECTION OF LAMENPA TENZIN CHÖDRAK (1924–2001):

11. *Srid gsum gtsug rgyan si tu chos kyi 'byung gnas kyi zhal lung dngul chu btso chen dang rin chen ril bu'i sbyor sde zla ba bdud rtsi'i thig le ces bya ba bidza ha ram* (303/1–391/2), by Degé Drungyig Gurupel.

TEXT 12 IS FROM THE PRIVATE COLLECTION OF THE LATE AMCHI JAMYANG TASHI OF TSONA (1918–1986):

12. *Bdud rtsi bcud kyi rgyal po dngul chu btso bkru chen mo'i sbyor bas grub pa'i bcud len tu bsgyur ba'i lag len rnam par gsal ba 'tsho byed mkhas pa'i snying bcud* (393/1–441/6), by Jamgön Kongtrul Lodrö Tayé (1813–1899/1900), also known as Kongtrul Yönten Gyatso, here mentioned by his other title Karma Ngawang Yönten Gyatso. Lamempa Tenzin Chödrak received the oral transmission from Lamempa Khyenrap Norbu of this text, and the Men-Tsee-Khang in Dharamsala relies on it as their main text when making *tsotel*.⁴⁰³

403 Czaja (2013,101) lists the second part of this text (422/7–441/6), which is on the processing of the eight metals and eight elements, separately as *Sman sbyor che chung rnams la nye bar mkho ba'i lcags brgyad dang khams brgyad kyi dug 'don thal sman gyi cho ga 'tsho mdzad mkhas pa'i khyad nor*.