

# THE TIBETAN ANATOMICAL SYSTEM.

BY

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### THE TIBETAN ANATOMICAL SYSTEM

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IN the present article I give a translation and description of the anatomical chart kept in the Temple of Medicine on the *lChags-po-ri* ("Iron Hill") at Lhasa, which, together with its connected monastery, forms the medical college of Tibet.<sup>1</sup> The chart demonstrates the Tibetan science of anatomy, and every Tibetan doctor is taught his anatomy from it.

The existence of the chart was discovered by Colonel Waddell,<sup>2</sup> I.M.S., who when at Lhasa as Chief Medical Officer with the Tibet Mission paid a visit to the *lChags-po-ri* Monastery, together with Captain (now Major) H. J. Walton, I.M.S., medical officer with the Mission, and other medical officers attached to the expedition, and Mr. D. Macdonald, interpreter. It was produced at Colonel Waddell's request, on his inquiring regarding the course of instruction and the methods of teaching that were followed. The chart is painted on a scroll of canvas mounted on cloth, the form in which all Tibetan paintings other than wall-paintings are made. It is 31¼ inches long by 25½ inches broad. Recognizing the interest and value of the chart, Colonel Waddell tried to secure the Monastery copy, but the Head Lama was not willing to part with it. He, however, allowed Colonel Waddell to

<sup>1</sup> Csoma de Kőrös was informed that there are two other medical colleges in Middle Tibet of some repute, called *Byang-zur* (བྱང་ཟུར་), "Analysis of a Tibetan Medical Work," by M. Alexander Csoma de Kőrös, *JASB.*, vol. iv, Calcutta, 1838, p. 2. I have not heard of the *Byang-zur* school.

<sup>2</sup> A description of the "Temple of Medicine" and of Colonel Waddell's visit here referred to is given on pp. 376-9 of *Lhasa and its Mysteries*, by L. Austin Waddell.

take the chart with him to have a copy of it made, and Major W. F. O'Connor, Secretary to the Mission, arranged for a Tibetan Lama artist to copy it at the Lha-lu House, where the Mission resided while at Lhasa. Four copies were made—one for the Government, one for Colonel Waddell, one for Captain Walton, and the other for myself, which is the copy now reproduced and described. The copies were all made from the original chart, which was then returned to the Head Lama. The copy made for Government is in the Library of the India Office, and Major Walton's copy of the chart is in the Hunterian Museum of the Royal College of Surgeons, to which he has presented it.

In the transliteration of the chart, I have given the silent letters of the Tibetan words (prefixes, superscribed letters, and final *s*) which are not pronounced, in italics, and in the case of proper names, or other words spelt with a capital, the initial silent letters are given in small type, the capital being given to the first letter which is pronounced.

In translating the chart I was fortunate in being able to get the assistance of a Tibetan doctor, Am-chhi Champa Thin-le, from the lChags-po-ri Monastery, who had come on a pilgrimage through Nepal, and was staying at the time at the Ghoom Monastery near Darjeeling.

The chart is known as Pyang-khok Las-thig (པྱང་ཁོག་ལས་ཐིག་), namely "The chart divided by lines", from the fact that the figure is divided up into a number of squares with the object of locating the correct position of the arteries, veins, and other organs marked.

I cannot say what the age of the chart may be. The chart now in use in the monastery is not the original, but is said to have been copied from an older chart, no longer in existence. The lChags-po-ri Monastery and medical school is said to have been built by Sans-rgyas rGya-mtsho, the minister of the fifth Dalai Lama, at the same time as the present Potala Palace was built,

1640–80 A.D. But the tradition is that Sañs-rgyas rGya-mtsho only added to or rebuilt a smaller monastery already in existence there, the foundation of which is attributed to King Sroñ-btsan sGampo when Buddhism was introduced into Tibet, namely about 650 A.D., and the monks are taught that the original chart was in existence long previous to Sañs-rgyas rGya-mtsho. Moreover, Sañs-rgyas rGya-mtsho is also credited with having written the medical commentary *Baidurya sñon-po*, which is certainly much older, as it is in the *bsTan-hgyur*.

The Am-chhi ("Doctor") informs me that this is the only anatomical chart used. Each student has a copy of the chart. He had had his own copy, but had sold it to another Am-chhi in Sher-Khong-bu (on the border of Nepal) when he was coming to Darjeeling. The student gets the copy made by a painter in Lhasa, and is allowed to take the original from the Monastery for the purpose. The cost of making a copy varies from 20 to 30 *tankas*, namely from 10 to 15 shillings.

Preliminary instruction is also given from another chart, of which the Am-chhi made me a rough sketch, in which four trees are shown side by side, namely, (1) the healthy tree (ནད་མེད་སྒོང་པོ་ nad med sdoñ-po), (2) the diseased tree (ནད་ཀྱི་སྒོང་པོ་ nad kyi sdoñ-po), (3) the tree under treatment (བཅོས་པའི་སྒོང་པོ་ bchos-pai sdoñ-po), and (4) the tree under nourishment (ཟས་ཀྱི་སྒོང་པོ་ zas kyi sdoñ-po); and from the analogy of these the benefits of treatment and suitable food in the case of human disease is explained.<sup>1</sup>

<sup>1</sup> The Am-chhi explained the use of this chart as follows. In the perfect tree there should be 500 branches. In the diseased tree certain parts are inactive, such as dead leaves and branches; so in the body, disease is shown by certain veins (རྩ་ rtsa) being inactive, but, as the withered tree under care and cultivation can recover and put out fresh leaves, so a patient can recover and the diseased parts be restored under treatment. This chart is referred to in the Tibetan medical work, the *rGyud-bṣi*, which is the source of the Tibetan science of medicine. A translation of an analysis of the contents of this work has been given

The Tibetan system of anatomy and of medicine was derived from India. In its original form it is contained in a work entitled རྒྱུད་བཞི་ (*rGyud-bṣi*),<sup>1</sup> “The Four Tantras,” from the four parts into which it is divided, and which is said to have been spoken by Buddha, although it is not contained in the *bKah-hgyur*, or *bsTan-hgyur*. Csoma de Körös has given a translation of an analysis of this work that was made for him by a Tibetan Lama.<sup>2</sup> The following is the account given in the *rGyud-bṣi* of the manner in which this treatise of medicine found its way into Tibet:—“In the time of Khri-srong Dehutsan [in the eighth or ninth century of the Christian era] a Tibetan interpreter Bairotsana or [Vairochana], having translated it in Cashmir, with the assistance of a physician-pandit ལྷ་བ་མངོན་དགའ་ [Zla - ba mÑon - dgah, pronounced ‘Dawa Ñon-gah’], presented it to the above-mentioned

by Csoma de Körös, in which the above chart is referred to as follows: “The theory of the human constitution is illustrated by a similitude taken from the Indian fig-tree (ཤིང་གླུ་ངན་མིང་ *śiñ mya ñan meñ*). Thus there are three roots, or trunks; thence arise nine stems; thence spread forty-seven boughs or branches; thence 224 leaves; two blossoms and three fruits. The single root, or basis of diseases; the stems, branches, and leaves arising thence, taken or considered in a healthy or in a diseased state. Distinctions with respect to wind; ditto with respect to bile; as also to phlegm; their respective offices, operations, or influences.” (JASB., vol. iv, Calcutta, 1838, p. 2.)

<sup>1</sup> There are two block-print copies of the *rGyud-bṣi* in the Library of the India Office, marked D. 1 and D. 2. The title is བདུད་རྩི་སྤྱིང་པོ་ཡན་ལག་བརྒྱུད་པ་གསང་བ་མན་ངག་གི་རྒྱུད་ (*bdud rtsi sniñ-po yan-lag bṛgyad-pa gsañ-ba man-ñag gi rgyud*), “The treatise of the nectar-essence of the eight branches (lit. ‘limbs’) of hidden instruction,” which is also given in Sanskrit as *Amṛta-hṛdaya-aṣṭa-aṅgaguhya-upadeśa*. The four parts, ཀ་, ཁ་, ག་, ལ་, of the copy D. 1 consist of 8, 43, 210, and 62 folios respectively, and of the copy D. 2 consist of 11, 43, 226, and 62 folios respectively. There is also a copy in the British Museum in which the second part (ཁ་) is wanting. The other parts, ཀ་, ག་, and ལ་, consist of 5, 226, and 62 folios respectively. The printing of the British Museum copy is the more distinct.

<sup>2</sup> JASB., vol. iv, Calcutta, 1838, pp. 1-20.

Tibetan king. At that time it was received by *gYu-Thog*, a learned physician, and by several others, and afterwards it devolved successively to others till *gYu-Thog* (the thirteenth in descent from the first), styled the New *gYu-Thog* to distinguish him from the former physician of the same name, who is called 'the ancient'. This physician much improved and propagated it; and at that time, it is stated, nine men became learned in medicine."

Besides the five volumes on medicine in the *bsTan-hgyur* and the instructions on medicine to be found scattered in the *bKah-hgyur*, there are several subsequent works on medicine in Tibet, the principal of which is the *Baidurya sÑon-po* ("The Lapis Lazuli"), written by *Sans-rgyad rGya-mtsho*, the regent of the fifth Dalai Lama, which is a commentary on the *rGyud-bṣi*.<sup>1</sup>

The *Am-chhi* says that all the students at the medical monastery of *lChags-po-ri* are taught the *rGyud-bṣi*, but that only the most advanced students go on to the *Baidurya sÑon-po*.

The four parts of the *rGyud-bṣi* are: (1) *ཙ་བའི་རྒྱུད་*, the treatise of the *rTsas*, namely, arteries, veins, nerves, and pulses. *Csoma de Körös* has translated this word as "root", which is another of its meanings, and consequently calls the first *rGyud*, "The treatise of the root or theory of medicine," but this is not the meaning of the word as used in the anatomical sense; (2) *བཤད་པའི་རྒྱུད་*, "explanation" of the body and the causes of diseases; (3) *མན་ངག་གི་རྒྱུད་*,

<sup>1</sup> There is a block-print copy of the *Baidurya sÑon-po* in the Library of the India Office. The title is *གསོ་བའི་རིག་པའི་བཟུན་བཅོས་སྤྲན་སྒྲིབ་དགོངས་རྒྱན་རྒྱུད་བཞིའི་གསལ་འབྲེད་བེད་རྩུ་སྤོན་པོའི་མཛེ་ཀ* (*gSo-bai rig-pai bstan-bcos*

*sMan-bLai dgoñs-rgyan rGyud-bṣii gsal byed-Baidūra sÑon-poi malli-ka*), "The Jasmine-flower [a complimentary title given to books], the *Baidurya sÑon-po*, a treatise on the science of healing by *sMan-bLa*, being an explanation of the ornament of thought, the *rGyud-bṣi*." The work is in four volumes (ཀ་, ཁ་, ག་, ང་), which consist of 40, 283, 563, and 250 folios respectively. The copy is a clearly printed one.

“instruction” as to the treatment of diseases; and (4) མྱི་པའི་རྒྱུ་, “external” treatment, namely, manual operation, etc.

The following extracts from the analysis of the *rGyud-bṣi* give the principal Tibetan theories in regard to anatomy:—

“There are seven supports of the body on which life depends: the chyle, blood, flesh, fat, bone, marrow, and semen.

“The three generative causes of diseases are: lust or ardent desire, passion or anger, dullness or ignorance. By the first is caused wind, by the second bile, by the last phlegm. The accessory causes of disease are four: (1) the season with respect to cold and heat, (2) any evil spirit, (3) wrong use of food, and (4) ill conduct of life.

“The parts of the body commonly subject to disease are six: the skin, the flesh, the veins, the bones, the viscera, and the bowels.

“The proper places of the three humours are: that of the phlegm in the upper part of the body, as the proper place of dullness in the brain or skull; that of the bile in the middle part of the body, which is appropriate to anger; and the wind resides in the lower part of the trunk, in the waist and loins, as in its proper place.

“There are fifteen ways or channels through which disease spreads itself. The channels of the motion of wind are the bones, the ear, skin, heart, artery, and the guts. The blood, sweat, the eye, the liver, the bowels are the ways or vehicles of bile. The chyle, flesh and fat, marrow and semen, ordure and urine, the nose and the tongue, the lungs, the spleen, and the kidneys, the stomach and the bladder, are the vehicles for the conveyance of the phlegmatic humour.

“With respect to the three humours this further distinction is made: wind is predominant in the diseases



of old people, bile in those of adolescents or youths, and phlegm in children.

“With respect to the place (or part of the body): wind occurs in the cold parts of the body, bile in the dry and hot parts, phlegm abides in the moist and unctuous parts.”<sup>1</sup>

“The cause of the generation of the body is stated to be: the father’s seed, the mother’s blood, and the arising of consciousness. If the first be predominant there will be born a son; if the second, a daughter; if both are equal, then a hermaphrodite. Should it happen that the blood be formed into two masses, then twins will be born.

“Out of the semen are formed: the bone, the brain, and the skeleton of the body. Out of the mother’s blood are generated the flesh, blood, heart, with the other four vital parts (lungs, liver, spleen, kidneys), and the six vessels or veins. From the soul, or vital principle, arises consciousness through the several organs.

“There are 23 sorts of bones. In the backbone 28 are distinguished. There are 24 ribs, 32 teeth, 360 pieces of bones. There are 12 large joints of limbs, small joints 250. There are 16 tendons or sinews, and 900 nerves or fibres; 11,000 hairs on the head; 11,000,000 pores of the hair on the body. There are five vital parts (or viscera) (as the heart, lungs, liver, spleen, and the reins or kidneys); six vessels and nine openings or holes. In *Jambudvīpa* the measure of a man’s height is 1 fathom or 4 cubits; deformed bodies have only 3½ cubits, measured by their own.

“With respect to the second section, showing the state of the veins. There are four kinds of veins or nerves: (1) that of conception, (2) of sensation, (3) of connexion, and (4) that of vitality.

“The first: From the navel there arise or spread three veins or nerves; one of them ascends to the brain, and is

<sup>1</sup> JASB., vol. iv, Calcutta, 1838, p. 3.

acted on by the dull part of it, generating the phlegm in the upper part of the body. Another nerve (or vein) entering into the middle forms the vital nerve, and depends for its existence on the vital nerve of passion and blood; that part of it which causes bile resides in the middle. The third nerve (or vein) descends to the privy parts, and generates desire both in the male and female. The part of it which produces wind resides in the lower extremity.

“The second: There are four kinds of nerves of existence or sensation.

“For rousing (or exciting) the organs in their proper place there is in the brain a principal nerve, surrounded by 500 other smaller ones. Another nerve for making clear the organ of recollection or memory resides in the heart, surrounded with 500 other smaller ones.

“The nerve which causes the increase and renovation of the aggregate of the body resides in the navel, surrounded with 500 other smaller ones.

“The nerve which causes the increase of children and descendants resides in the privy member, together with 500 other smaller ones, and comprehends or encompasses the whole body.

“The third: The nerve of connexion consists of two kinds, white and black. There are twenty-four large veins (or nerves), which, like as so many branches ascending the principal stem of the vital principle, serve for increasing the flesh and the blood. There are eight large hidden veins or nerves for making the connexion of the diseases of the viscera and vessels.

“There are sixteen conspicuous veins connecting the outward limbs, and seventy-seven others spreading from them, called གྲམ་རྩ་ *gtar-rtsa*, bleeding veins (that may occasionally be opened to let out blood).

“There are 112 hurtful or pestilential veins (or nerves), of a mixed nature; there are 189 others. Thence originate

120 in the outer, inner, and middle parts, that spread into 360 smaller ones. Thence smaller ones encompass the body as with a network.

“There are nineteen strong working nerves, which, like roots, descend from the brain, the ocean of nerves; from among them there are thirteen that are hidden, and connect the intestines; six others, connecting the outward parts, are visible; from them spread sixteen small tendons or sinews.

“There are three vital nerves (or veins) in a man. The one encompasses both the head and the body; the second, associating with respiration, moves accordingly; the third is the principal, and, connecting the veins or canals for the circulation of air and blood, is occupied with generating or increasing the body, and being the vital nerve is called by way of eminence the artery or the principal vital nerve.”

The following is the theory as regards the three humours—wind, bile, and phlegm:—

“(1) *Of wind.* The life-keeping wind or air resides in the upper part of the head; that which operates upward has its place in the breast; that which pervades or encompasses all resides in the heart; that which communicates or conveys an equal heat to the body has its seat in the stomach; that which cleanses downwards abides in the lower part of the trunk.

“(2) *Of bile.* The digesting bile resides in the stomach, between the digested and indigested part; that which forms the chyle resides in the liver; that which prepares or increases, in the heart; that which assists the sight (or causes to see), in the eye; that which gives a clear colour resides in the skin.

“(3) *Of phlegm.* The supporting phlegm resides in the breast; the masticatory, in the indigested part; the tasting, on the tongue; the refreshing (or that which

makes contented), in the head ; the conjunctive or uniting, resides in every juncture (or joint).”<sup>1</sup>

Reference should also be made to Dr. Heinrich Laufer's Treatise on Tibetan Medicine, in which he includes the above analysis of the *rGyud-bṣi* and also refers to the contributions of subsequent European writers.<sup>2</sup>

### DESCRIPTION OF THE CHART

The Am-chhi gave me the following information with reference to the chart :—

The central figure is, as will be seen, standing with its back to the observer. There is no other chart giving a corresponding front view of the standing figure, as the remaining organs viewed from in front are given in the two seated figures at the side on the chart.

The Am-chhi says that the numbers given against each entry in the chart refer to the numbers in a medical book under which a full description of the part is given, but he did not remember the name of the book.

In the spine the vertebræ numbers 1 to 5, the Am-chhi says, are considered to be the bones (རུས་ཁོག་ *rus khog*) of the neck (འཇིང་པ་ *hjin-pa*); Nos. 6 to 20 those of the backbone (སྒྲུབ་ཚོགས་ *sgal-tshigs*); and Nos. 1 to 3 at the base of the spine the continuation of the spinal marrow into the genital organ; Nos. 1 and 2 are bones, and 3 is the penis.

The Am-chhi says there are four principal *rtsas* (རྩ་), which term comprises arteries, veins, and pulses, namely རོ་མ་ (*ro-ma*), ཀྱང་མ་ (*rkyang-ma*), དབུ་མ་ (*dbu-ma*), and, སུད་པ་ (*sdud-pa*). *Ro-ma* is the artery to the teeth, and it is through this artery that man has the sense of taste. There are two branches of the *ro-ma*, one on either side of

<sup>1</sup> JASB., vol. iv, Calcutta, 1838, pp. 5-10.

<sup>2</sup> *Beiträge zur Kenntnis der Tibetischen Medicin*, by Heinrich Laufer, Berlin, 1900.

the neck (the external jugular veins). The ro-ma is white in colour.

The rKyang-ma also has two branches, one on each side of the neck. It is red in colour. Its principal function is the contraction and relaxing of the limbs. The Tibetans believe that this is done by the veins (or nerves) (རྩ་ rtsa), and not by the muscles (འག་ śa).

The dBu-ma is the principal or central artery. It cannot be seen. It is within the heart, and it is by means of this artery that man breathes. It is elastic like a piece of india-rubber, and can stretch and contract with the breathing. When it breaks life at once becomes extinct. The breaking of the dbu-ma is the cause of death in all creatures.

The sDud-pai-rtsa is the general system of veins throughout the body. These veins extend to the tips of the third finger.

It is believed that a child is born with its hands up to its face in such a position that the two nostrils are closed by the two third fingers, the two eyes by the two second fingers, and the mouth by the two fourth fingers, and the two ears are bent forward and closed by the thumbs; in this way seven of the nine openings of the body (དབང་པོ་བྱ་ག་དགུ་ dban-po bu-ga dgu) are closed, the remaining two openings, the anus and the urethra, not being closed at birth.

The veins are like a tree. They spring from roots and terminate in a flower. Thus the tongue (ལྗེ་ lche) is the flower of the dbu-ma. The dbu-ma comes from the heart (སྟིང་ sñin). The eyes are the flower of the liver artery (མཚིན་རྩ་ mchhin-rtsa), which springs from the liver (མཚིན་པ་ mchhin-pa). The nose is the flower of the lung artery (གློ་རྩ་ glo-rtsa), which springs from the lungs (གློ་མ་ glo-ma). The ears are the flower of the kidney artery (མཁལ་རྩ་ mkhal-rtsa), which springs from the kidney (མཁལ་མ་

mkhal-ma). The lips are the flower of the spleen artery (མཚེར་རྩ་ mchher-rtsa), which springs from the spleen (མཚེར་པ་ mchher-pa).

The seated figure on the left of the chart represents a man, that on the right of the chart a woman. But the organs are the same in the man and in the woman, except that a woman's heart is said to be in the centre of the body and the man's somewhat to the left.

The figure on the right shows the internal organs of the body. The Am-chhi says that the position of the internal organs has been ascertained when the dead body is cut up for distribution of its flesh to birds and dogs, which is the method of disposal after death. But no dissection is followed at the lChags-po-ri Monastery as part of the training in anatomy, which is only taught from the chart.

There are five elements in the body (འགྲུང་བ་བཞི་དྲི་ཁམས་ hbyuñ-wa bñii khams), namely, earth (ས་ sa), water (ཚུ་ chhu), air (རླུང་ rlung), fire (མེ་ me), and ether (སཀའ་ mkah). The theory of digestion is curious. The stomach is earth, the air blows, so that the fire burns and causes the water to boil, and so digests the food.

The Tibetans believe that the red blood circulates on the right side and the yellow bile on the left side. They say that there are six pulses, three on the right arm and three on the left, and a Tibetan doctor feels the three pulses at the same time with three fingers. These pulses are said to come from different organs, and from the condition of each pulse the doctor judges the condition of the organ from which it is said to come. The Tibetan word for pulse is ཕར་རྩ་ (phar-rtsa), viz. "throbbing artery". The following are the names of the six pulses: མཁྲིས་རྩ་ (mkhris-rtsa), which comes from the bile; རླུང་རྩ་ (rluñ-rtsa), from the breath; གློ་རྩ་ (glo-rtsa), from the lungs; རྩིང་རྩ་

(sñin-rtsa), from the heart; མཁལ་རྩ་ (mkhal-rtsa), from the kidneys; and མཚེར་རྩ་ (mchher-rtsa), from the spleen.

The figure of the body is marked out in squares by the lines, in the first place, to show the correct position of the organs, so that they may be correctly placed in all the copies made of it for the students' use, and, secondly, for use in cupping and cauterizing. Cupping, མེ་རྒྱལ་པ་ (me rgyab-pa, "applying fire"), is usually done by means of a small copper pot, in which paper is lit and is then quickly applied to the affected part, and a blister is thus burnt. Cauterizing, which is also called མེ་རྒྱལ་པ་ (me rgyab-pa), is done by an iron rod called ལྷགས་མེ་ (lchags-me, "iron-fire"), which is applied through a series of small holes in a flat iron disc laid over the place to be cauterized. No cupping or cauterizing is allowed from between the eleventh and twentieth joints of the spine. Each square is the width across the knuckle when the hand is closed (*vide* No. 120). Having diagnosed the seat of the pain or the organ affected, the physician measures on the patient's body the same number of widths across the patient's knuckle as there are squares to the position of the organ on the chart. This measurement varies with the size of the individual patient, and so gives the correct location of the organ. The portions of the body which can be cupped or lanced depend on the day of the month, because the soul, or life (ལྷ ལྷ་), moves about to different parts of the body on different days of the month, and cupping or cauterizing cannot be done at the part of the body where the soul is at the time. There is a manual called ལྷ་གྲས་ཀྱི་རྩིས་ (bLa gnas kyi rtsis, *The Calculation of the Movement of the Soul*), which states in what part of the body the soul is on each day of the month. The position of the soul is as follows:—

On the 1st day of the month the soul abides in the sole of the right foot of a male person. It then ascends by the right side. On the 2nd it abides in the upper part

of the right foot ; on the 3rd in the calf of the leg ; on the 4th in the back of the knee-joint ; on the 5th in the knee ; on the 6th in the thigh ; on the 7th in the hip ; on the 8th in the kidney ; on the 9th in the ribs ; on the 10th in the shoulder ; on the 11th in the arm ; on the 12th in the palm of the hand ; on the 13th in the neck ; on the 14th in the right cheek ; on the 15th it permeates the whole body. It then descends by the left side. On the 16th in the left cheek ; on the 17th in the neck ; on the 18th in the palm of the hand ; on the 19th in the arm ; on the 20th in the shoulder ; on the 21st in the ribs ; on the 22nd in the kidney ; on the 23rd in the hip ; on the 24th in the thighs ; on the 25th in the knees ; on the 26th in the back of the knee-joint ; on the 27th in the calf of the leg ; on the 28th in the upper part of the foot ; on the 29th in the sole of the left foot ; and on the 30th it again permeates the whole body. The soul abides in the soul of the left leg of a female person on the 1st day of the month, and goes round the body to the sole of the right foot in the reverse of the order mentioned above. If the affected part is burnt, or if blood is taken out of it, where the soul abides at the time in a human body or animal, he will die within three years. It is therefore very necessary to ascertain the abode of the soul if one cuts oneself with any weapon or hurts oneself in any way.

The colouring of the chart is as follows : The central figure is coloured buff. The lines forming the squares are yellow. The veins on the right side of the body are coloured red ; those on the left side yellow. The coil on the sole of the right foot is red, that of the left foot yellow. The outer portion of each of the vertebræ is pink. The genital organ is coloured red, yellow, and blue in twisted bands (representing blood, bile, and the marrow of the spinal chord respectively). The bottom part of the finger and toe-nails is red, the upper part blue.



The standing figure represents the portions of the veins and arteries that are visible externally.

The seated figure on the left, which represents internal organs, is coloured light pink. The spinal marrow is blue, and also the *rtsas* leading from it to the kidneys (Nos. 107 and 108) and to the liver (105), and from the liver to the lungs. The three arteries shown connecting the heart and lungs are red. The lips and outer corners of the eyes are red. The kidneys are a mottled pink, darker than the figure. The liver and spleen are dark pink. The heart and lungs are shaded a darker pink on their outer edges.

The right-hand seated figure, which is a female figure, is coloured light pink, the same colour as the seated male figure. The four main arteries ending in a flower and forming a cross are blue. The circle of smaller arteries radiating from the centre are alternately red and blue; of the others, No. 114 is red, 115 is yellow, 116 is white, 118 is red. The nails are red at the bottom and blue at the top. The lips and the outer corner of the right eye and inner corner of the left are red.

The two hands given as measures (120 and 121) are light pink, the same colour as the seated figures.

The veins and arteries shown on the central figure are those that are conspicuous when the limb is warm, and are therefore easily seen. The vessels shown at various parts of the back are suggestive of some slight knowledge of dissection. The cutaneous branches of the intercostal vessels become superficial in a somewhat similar manner.

The liver, though shown entirely on the right side, is correctly shown as having a large right half and a smaller left half.

It is curious that the stomach (ཕོ་བ་ *pho-wa*), the intestines (ལོང་ཀ་ *lon-ka*, the large intestine, ལྷ་མ་ *rgyu-ma*, the small intestines), and the bladder (གླུང་ *glañ*) should not be shown on the chart of the internal

organs. The reason for their omission appears to be that the chart (*vide* serial No. 111) is of the eight principal *rtsas* connecting the spinal cord and the internal organs, and that the stomach, intestines, and bladder, etc., are not considered as being so connected.

### TRANSLATION OF THE ANATOMICAL CHART

At the top of the chart there are pictures of twelve famous physicians. They are as follows, beginning from the left hand :—

1. མང་ཐོས་ལྷ་བའི་དབང་པོའི་མཚན་ (mañ-thös zLa-wai dBañ-poi mtshan). “The name of the famous zLawai dBangpo” (pronounced Dawai Wanpo).
2. རིན་སྲིད་སློབ་མཚན་རྒྱ་མཚོའི་དཔལ་ (Rin-sdiñs bLo-bzañ rGya-mtshoi dpal). “The exalted bLo-bzañ rGya-mtsho of Rin-sdiñs.” Rin-sdiñs is a monastery near Gyantse, at which place this physician is said to have been born.
3. དྲམ་སྲོང་བལྟན་འཛིན་ཀྲུལ་པོའི་མཚན་ (drañ-sroñ bstan-hdzin rgyal-poi mtshan). “The name of the holy hermit (= Sanskrit *Rṣi*) bsTan-hdzin rGyal-po.”
4. བྱང་ངོས་མཁམ་དབང་དར་ཀྲུམ་ལའབས་ (byañ-nös mkhas-dbañ dar-rgyas ṣabs). “At the feet of the honourable mKhas-dBañ of the Northern desert.
5. ཉམས་རྟོགས་མངའ་བ་སྐྱན་སློམ་པ་ (ñams rtogs mñah-wa sMan sGom-pa). “The all-knowing learned sMan sGom-pa” (= Meditator on medicine).
6. བྲ་ཚང་སློབ་མཚན་རྡོ་རྗེའི་ལའབས་ (khra-tshang bLo-mchhog rDo-rje ṣabs). “At the feet of the honourable bLo-mchhog rDo-rje.”
7. བལྟན་པའི་བདག་པོ་སྐད་རྩྭ་ (bstan-pai bdag-pai Sarba Dzñah).  
“The master of doctrine, Sarba Dzñah.”
8. མཁམ་ཚེན་གྲུ་ཀྲུ་དབང་ཕྱག་ལའབས་ (mkhan-chhen Śah-kyā dBañ-phyug ṣabs). “At the feet of the great abbot

Sahkya *dBan-phyug*." Above this picture there is the following inscription: འདི་ནས་སྤིང་པོ་བསྐྱུས་པའི་བརྒྱུད་པ་ (*hdi-nas sÑiñ-po bsDus-pai brgyud-pa*). "From here begin the descendants of *sÑiñ-po bDus-pa*," who was a celebrated Lama physician.

9. མཁས་མཚོག་བསོད་ནམས་རྒྱལ་པོའི་མཚན (*mkhas-mchhog bsöd-nams rgyal-poi mtshan*). "The name of the most learned *bSöd-nams rGyal-po*."
10. རིན་སྤིངས་སློབ་མཚན་གྱི་མཚོའི་དཔལ་ (*Rin-sdiñs bLo-bzañ rGya-mtshoi dpal*). "The exalted *bLo-bzañ rGya-mtsho* of *Rin-sdiñs*." This is the same name as No. 2, the reason being that the Lama now referred to was a reincarnation of the former Lama.
11. དྲང་སྲོང་བསྐྱན་འཛོལ་རྒྱལ་པོའི་ཞབས་ (*drañ-sroñ bstan-hdzin rgyal-poi şabs*). "At the feet of the holy hermit *bsTan-hdzin rGyal-po*." This is the same name as No. 3, as this Lama physician was a reincarnation of the former Lama.
12. གླིང་སྤོང་སློབ་མཚན་གྱི་མཚོའི་དཔལ་ (*gLiñ-stoñ bLo-bzañ rGya-mtshoi dpal*). "The exalted *bLo-bzañ rGya-mtsho* of *gLiñ-stoñ*."

The entry at the foot of the chart (No. 85) is as follows:—

སྤྱི་བོ། མགྲིན་པ། སྤིང་ག། ལྷ་བ། གསང་བ་ལྡའི་ཙ་ལའོར་རྣམས་སུ་རྩའདབ་ཉེར་བཞེ་  
 རི་དང་། དེ་ཡང་རོ་མ་ལས་བཅུ་དང་རྒྱུང་མ་ལས་བཅུ་ལྟེ་ཉེ་ལྷུ་རི་རི་ལ་ཡང་སྤུན་ཉེ་ལྷུ་རི་  
 དབྱ་མ་ལས་གྲེས་པ་བཞེ་བོ་ལས་ཉེར་ལྷུ་རི་དང་རྩ་སྤུན་ལྷུ་བརྒྱ་རིས་བསྐོར་བའི་རྒྱལ། སློབ་ལྡའི་  
 རྣམ་ཤེས་ཚོགས་དུག་བསྐྱད་པའི་རྩ་ཡིད་བཟང་མ་སོགས་ཀྱི་མཚལ་ཡང་། གདར་རྩ་དབྱ་  
 བཅུ་མཚན་པའི་རྒྱབ་མདུན་རྩུར་པ་མཚལ་ཡང་། གཉན་པའི་རྩ་གནད་སྐྱག་ཡང་། རོ་རྒྱུང་  
 གི་རང་དགས་ཀྱི་དཀར་དམར་མདོག་གཡས་གཡོན་དུ་བརྒྱགས་པ། འཕར་རྩ་རྣམས་གྲིམས་  
 པ། མགོ་སྐྱེ་ཁ་རྩར་བཀོད་། མི་ལུས་པལ་པའི་དབང་གིས་སོར་སོ་གོ་དུག་པར་ཆ་བཞག་  
 པའི་གཙོ་བོའི་

The translation of the above is as follows :—

“The head, throat, heart, navel, (and) the secret parts, these five, each have twenty-four leaves (viz. branch arteries). Again, from the ro-ma (artery there are) ten and from the rkyañ-ma (artery there are) ten. These twenty have each twenty small ones. From the dbu-ma (artery) there are four separate (branches), each having twenty-five (branches), and these are each surrounded by five hundred small arteries. The artery which produces the six kinds of perception of the five senses, and of the good soul, etc., is vermilion. The ninety blood veins on the back, in front, and on the sides of the illustration are also vermilion. And the most powerful (lit. ‘fierce’) and essential arteries, ro-ma and rkyañ-ma, (are shown) in white and red colour, running right and left. All the pulses (are) quick-moving. The head, neck, (and) corners of the mouth (are) carefully drawn. The human body of usual power is ninety-six *sor-mos* (measure of the width of the knuckle—*vide* No. 120), as is well shown on the diagram.”

The last line (No. 86) is as follows :—

འབྲུག་ལྷོག་ལྷོག་དང་དོན་གསལ་ཅད་མདུན་ཤོར་མ་དང་སྤྱོད་ །

“The manner of reading the chart, all the meanings, and measurements are given above.”

The entries on the central figure of the chart bear serial numbers from 1 to 97, with the exception of certain numbers which are omitted. I have also given numbers (99 and 100) to the two entries on the soles of the feet, and to the entries on the two figures on either side, and also (85 and 86) to the entries at the foot of the chart for convenience of reference.

The following serial numbers do not appear on the chart: 1, 2, 5, 6, 11–14, 17, 28, 29, 59–61, 65–76, 78, 80, 83, 86, 89–96. Of these, the four numbers 1, 2, 5, and 6 would appear to have been omitted from the four entries of

muscles, རྟེན་ (śa), in the head, which bear no number, in the same line as the muscles Nos. 26 and 27.

The following numbers occur twice, being given in most cases for the corresponding entries on either side of the body, namely, 39-41, 49, 50, 53, 54, 63, and 81.

The entry at the right-hand side of the top of the head of the standing figure (beneath the figures of the seventh and eighth Lama physicians) has, by oversight, not been given a serial number. It is as follows : ཚངས་པའི་སྤུང་པ་འང་གྲེན་ (tshan-pai sdud-pa aṅ-krer), “the suture of Brahma and the forehead” (*vide* serial 3 below).

The serial numbers are as follows :—

- 1, 2. These numbers are not entered on the chart. As No. 3 occurs twice, it would appear that the entry No. 3 (re-thag) is intended to be No. 2.
3. རེ་ཐག་ (re-thag). “The cord of hope.” This is said to be a cord extending from the end of the spinal cord to the suture (Posterior Fontanelle) on the crown of the head (སྤྱི་གཙུག་ spyi-gtsug). It is up this cord that the soul or life (དབུ་མ་ dbu-ma) passes out of the body through the suture at the time of death. This suture is called ཚངས་པའི་བྱ་ག་ tshanis-pai bu-ga, “the aperture of Brahma,” from the corresponding Sanskrit term ब्रह्मरन्ध्र, the above belief having been taken from Indian medicine. As soon as the soul has left the body blood issues from the left nostril and mucus from the right.
- 3, 4. འུ་རྩ་གཉིས་ (blta - rtsa gñis). “The two occipital arteries.” The spelling on the chart is unusual. The word is generally spelt འུག་རྩ་ (ltag-rtsa), namely, the artery of the occiput.
- 5, 6. These numbers are not entered on the chart.
7. སྤྱོགས་རི་ཚིག་མཚམས་ (skyogs-rai tshig-mtshams). “The tissue (or muscle) between two joints.” The muscle

shown here, and also the corresponding one on the right side shown under No. 77, is that of the shoulder joint, but there is a similar muscle called by the same name at every joint. It is considered to be a vein or artery, *rtsa*. As this number corresponds to No. 77 on the right arm, and as Nos. 76 and 78 do not occur on the chart, it seems probable that this number should be 76 or 78, the last figure having been omitted.

8. The name is not entered on the chart against this number.

9, 10. རུས་ལྷག་པའི་སྤྱད་སྒོ་དང་དེའི་གཡས་གཡོན་ (rüs lhag-pai sdüd-  
sgo dan dei *gyas-gyön*). "The opening (lit. door) where the chief bones connect, and its right and left," namely, the sutures where the bones of the skull join. These sutures are shown under No. 10 in three places on the head, the lower one being the counterpart on the left side to No. 9, and the other two on either side higher up. These should probably bear the succeeding Nos. 11 and 12, which are not noted on the chart. The position of these sutures is not accurate, but they appear to represent the two lateral (squamous) sutures, and the two transverse (coronal and lambdoid) sutures.

11-14. These numbers are not entered on the chart.

15. ལུང་འཛིན་ཁུག་པ་ (luñ-*hdzin khug-pa*). "The hollow of the joint." The Am-chhi says that this is a *rtsa* in the hollow between the collarbone and the sternocleido-mastoid muscle. It is therefore the subclavian vein. The No. 15 on the chart is evidently a clerical error of the copyist for 55, which is the number given to this entry on the other copies, and corresponds on the right side to No. 56 on the left side. But, as 55 is also the number given to a vein on the left hand, the present number should, apparently, be 57, which does not occur on the chart.

16. བོ་མཚན་འཕར་ཙ་རྒྱལ (pho-mtshan lphar-rtsa rgyab).  
 “The back pulse of the male organ.” It would appear that this No. 16 is a mistake for 80, which is the number that this vein would, from the figure, be expected to have.
17. This number is not entered on the chart.
18. འ (śa). “Muscle.”
- 18a. འ (śa). “Muscle.” I inserted this extra number (18a) against this entry on the chart by oversight, as I did not notice that the No. 26 on the chart applies to this entry.
19. འ (śa). Muscle.
- 20, 21. These numbers are not entered on the chart. These numbers would probably be other śas or muscles of the head, as they come amongst those entries.
22. འ (śa). Muscle.
23. འ (śa). Muscle.
24. འ (śa). Muscle on the left, corresponding to No. 22 on the right.
25. འ (śa). Muscle on the left, corresponding to No. 23 on the right.
26. འ (śa). Muscle.
27. འ (śa). Muscle on the left, corresponding to No. 26 on the right.
- 28, 29. These numbers are not entered on the chart.
30. རུ་ཐུང་ (ru-thuñ). “The short horn.” The Am-chhi says that the word ར་ has not the meaning of “horn” here, but is merely the name given to the vein (rtsa), because it is a short one (viz. that the portion of it which is visible on the surface is short). He pointed out the posterior ulnar vein as being this rtsa.
31. རུ་ཐུང་ (ru-thuñ). The vein on the left arm corresponding to the above.

32. མཁྲིས་པ་གཤམ་རིང་ (*mkhris-pa gśah-riñ*). “The long pure bile.” The Am-chhi says that although the bile mainly circulates on the left side and its “veins” (*rtsa*) are shown as yellow, it also circulates, mixed with blood on the right side, as here.
33. མཁྲིས་པ་གཤམ་རིང་ (*mkhris-pa gśah-riñ*). “The long pure bile.” The corresponding “vein” on the left arm to No. 32 on the right.
34. གློ་མ་ཚིགས་འགམ་ (*glo - ma tshigs - hgram*). (The *rtsa* of) the (left) posterior lobe of the lungs.
35. གློ་མ་ཚིགས་འགམ་ (*glo-ma tshigs-hgram*). (The *rtsa* of) the (right) posterior lobe of the lungs.
36. གློ་མ་ནང་རྒྱུག་ (*glo-ma nañ-rgyug*). The vein circulating inside the (left) posterior lobe of the lungs.
37. གློ་མ་ནང་རྒྱུག་ (*glo-ma nañ-rgyug*). The vein circulating inside the (right) posterior lobe of the lungs.
38. མཚིན་མཁྲིས་འདོམ་རྩ་ (*mchhin-mkhris hdom-rtsa*). “The vein connecting the liver and the bile.” The vein is on the right forearm. The Am-chhi cannot explain why this name should be given to this vein.
- 39 (on the left forearm). མཚིན་མཁྲིས་འདོམ་རྩ་ (*mchhin-mkhris hdom-rtsa*). The corresponding vein to the above on the left forearm.
- 39 (on the right side). གློ་མ་གྲོག་སྒེད་ (*glo-ma grog-sked*). “The ant-like waist of the posterior lobe of the lungs” (right side). The Am-chhi cannot explain what is exactly meant by this term.
- 40 (on the left side). གློ་མ་གྲོག་སྒེད་ (*glo-ma grog-sked*). The *rtsa* corresponding to the preceding, on the left side.
- 40 (on the right wrist). སྦྱར་གོང་ (*skyor-goñ*). “The flesh lump of the hollow of the hand,” namely, the ball of the thumb. The name given to the vein passing through the wrist to the thumb (right hand).



- 41 (on the left wrist). སྟོར་གོང་ (skyor-gon). Ditto (left hand).
- 41 (on the right side). གློ་མ་སྒེར་དོར་ (glo-ma sger-dor). “The posterior lobe of the lung” (right). The meaning of the word དོར་ is not clear. The Am-chhi says it is meant for རྩོར་རྗེ་ (rdor-rje), because this *rtsa* crosses itself and is like the shape of the *rdor-rje*, thunderbolt. This word is, however, spelt differently.
- 42 (on the left side). གློ་མ་སྒེར་དོར་ (glo-ma sger-dor). “The posterior lobe of the lung” (left).
- 42 (on fourth finger of right hand). སྤམ་བྱ་ (phran-bu). The vein of the “little finger”.
43. སྤམ་བྱ་ (phran-bu). Ditto (on the left hand).
44. རྒྱལ་ཙ་རྩལ་འདུམ་ (rgyab-*rtsa drug-hdüs*). “The collection of six veins of the back” (viz. of the back of the right hand).
45. རྒྱལ་ཙ་རྩལ་འདུམ་ (rgyab-*rtsa drug-hdüs*). Ditto. The corresponding veins on the left hand.
46. སྤྲིན་ལག་རྒྱལ་ཙ་ (srin-lag *rgyab-*rtsa**). “The back vein of the third finger (right hand).”
47. སྤྲིན་ལག་རྒྱལ་ཙ་ (srin-lag *rgyab-*rtsa**). Ditto (left hand).
48. བར་ཙ་ (bar-*rtsa*). “The middle vein” (right hand). The Am-chhi says this vein is so called because it runs between the thumb and first finger.
- 49 (on the left hand). བར་ཙ་ (bar-*rtsa*). Ditto. The corresponding vein on the left hand.
- 49 (on the right side). གཞེར་སྒོ་ (gzer-*sgo*). “The source of pain.” The Am-chhi says that this *rtsa* and the corresponding one on the left side are so called because all pains of the upper part of the back arise from them.
- 50 (on the left side). གཞེར་སྒོ་ (gzer-*sgo*). The vein corresponding to the preceding, on the left side.

- 50 (on the right hand). བར་རུ་ (bar-*rtsa*). "Middle vein," running between two fingers, viz. the first and second fingers of the right hand.
51. བར་རུ་ (bar-*rtsa*). "Middle vein," running between the first and second fingers of the left hand.
52. བར་རུ་ (bar-*rtsa*). "Middle vein," running between the second and third fingers of the right hand.
53. བར་རུ་ (bar-*rtsa*). "Middle vein," running between the second and third fingers of the left hand.
53. གློ་བུ་སྔོན་བུ་ (glo-bu sngön-bu). "The blue anterior lobe of the lungs" (right).
54. གློ་བུ་སྔོན་བུ་ (glo-bu sngön-bu). "The blue anterior lobe of the lungs" (left). These numbers (53 and 54) given to the lobes of the lungs appear to be a mistake for some other serial.
- 54 (on right hand). བར་རུ་ (bar-*rtsa*). "Middle vein," running between the third and fourth fingers of the right hand.
55. བར་རུ་ (bar-*rtsa*). "Middle vein," running between the third and fourth fingers of the left hand.
56. ལུང་འཛིན་ཁུག་པ་ (lung-*hdzin khug-pa*). "The hollow of the joint." Namely, a vein in the hollow between the collarbone and the sterno-cleido-mastoid muscle. This corresponds to No. 15 for the right collarbone, which number, as already noted, appears to be a mistake of the copyist.
- 57-61. Numbers not entered on the chart.
62. མཚེར་རུ་གྲ་ཀང་ (mchher-*rtsa bya-rkañ*). "The bird-foot vein of the spleen" (left side). The Am-chhi says this is so called because the veins spread out like the foot of a bird.
63. མཚེར་རུ་གྲ་ཀང་ (mchher-*rtsa bya-rkañ*). "The bird-foot vein of the spleen." The corresponding vein on the right side.

- 63 (on the right side of the back). མཁྲིས་རྩ་གསེར་གྱི་ཀ་བ་ (mkhris-rtsa gser-gyi ka-wa). "The golden-pillar vein of the bile." The Am-chhi says this is so called because it is a single straight vein like a pillar, and not branched like the "bird-foot" vein above.
64. མཁྲིས་རྩ་གསེར་གྱི་ཀ་བ་ (mkhris-rtsa gser-gyi ka-wa). "The golden-pillar vein of the bile." The corresponding vein on the left side.
- 65-76. These numbers are not entered on the chart.
77. སྐྱོགས་རའི་ཚོགས་མཚམས་ (skyogs-rai tshigs mtshams). "The tissue (or muscle) between two joints." This number on the right shoulder corresponds to No. 7 on the left shoulder, which would therefore appear to be a mistake of the copyist for 78.
78. This number is not entered on the chart.
79. རྣག་ཚེན་གཉེར་རིང་གི་མཁྲིས་རྩ་སྐྱ་རིངས་གཉིས་ (rnag - chhen gñer-riñ-gi mkhris-rtsa skya-riñ gñis). "The two long grey bile veins of long twisted pus" (at the back of each thigh). No. 79 is the right vein, and No. 81 the left vein.
80. This number is not entered on the chart. I put the figure "80" on the chart by mistake, as when first reading the chart I mistook the word རྣབ་ for "80", for which, as written on the chart, it might be taken. But it is evidently the entry against No. 16.
- 81 (on the left thigh). རྣག་ཚེན་གཉེར་རིང་གི་མཁྲིས་རྩ་སྐྱ་རིངས་གཉིས་ (rnag-chhen gñer riñ-gi-mkhris-rtsa skya-riñ gñis). The same entry as No. 79. As No. 81 occurs against the next entry the number 81 against the present entry is probably a mistake of the copyist for 80, for which there is no entry on the chart.
- 81 (on the right loin). དཔྱིའི་ཁ་གཟར་མཁལ་རྩ་ན་གུ་ (dpyi-i kha-gzar mkhal-rtsa na-gu). "The cord of the hip. The *Nagu* vein of the kidney" (right side).

- 82 (on the left loin). དཔྱིའི་ཁ་གཟར་སཁལ་ཙ་ན་གུ་ (*dpyi-i kha-gzar mkhal-rtsa na-gu*). "The cord of the hip. The *Nagu* vein of the kidney."
83. This number is not entered on the chart.
- 84 (left thigh). བརླའི་ཕྱི་བུལ་སཁལ་ཙ་རྐང་འདེགས་ (*brlai phyi-bul mkhal-rtsa rkañ-hdegs*). "The kidney vein coming out of the thigh, the support of the leg."
- 85 (right thigh). བརླའི་བུལ་སཁལ་རྐང་འདེགས་ (*brlai bul-mkhal rkañ-hdegs*). "The kidney vein coming out of the thigh, the support of the leg."
- 85, 86 (at the foot of the chart). These numbers are not in the Tibetan. I gave them for reference against the entry at the foot of the chart, which has been already referred to.
87. བརླའི་ཕྱི་རྩར་མཆེར་པའི་ཙ་ན་གུ་ (*brlai phyi-zur mchher-pai rtsa-nag*). "The black vein of the spleen on the outer side of the thigh" (left thigh).
88. བརླའི་ཕྱི་རྩར་མཆེར་པའི་ཙ་ན་གུ་ (*brlai phyi-zur mchher-pai rtsa-nag*). The same as the above on the right thigh.
- 89-96. Numbers not entered on the chart.
97. སྐབ་ཙ་ན་གུ་པོ་ (*sgab-rtsa nag-po*). "The black vein at the back" (of the right knee-joint). This is the external saphenous vein in the popliteal space.
98. སྐབ་ཙ་ན་གུ་པོ་ (*sgab-rtsa nag-po*). "The black vein at the back" (of the left knee-joint). The corresponding vein to the preceding.
- 99, 100. རྐང་པའི་མཐིལ་གྱི་བཞག་འདྲ་མཐིལ་འཕྲོད་གཉེས་ (*rkañ-pai mthil-gyi bzhang-hdra mthil-hphrog gñis*). "The two wheels resembling a coil of rope on the soles of the feet." The word *bṣag*, as spelt, means "placed", but the Am-chhi says that it means a coil of rope, which is usually spelt ཞགས་པ་ (*ṣags-pa*). The Am-chhi says that these are the terminations on either foot of a *rtsa* connected with the heart.

*The left-hand seated figure*

The title of this diagram (No. 111) is—

དོན་སྣོད་ནང་འབྲེལ་སྐྱུ་པའི་རྩ་ཆེན་བརྒྱད་ཚོགས་པ་ནས་འབྲེལ་བའི་རྩལ་

(Don-snod nan *hbrel sbas-pai rtsa-chhen rgyad tshigs-pa nas hbrel-pai tshul*). “The diagram showing the eight hidden chief arteries (*rtsas*) passing through the joints (of the vertebræ) and connecting the internal organs.” These eight *rtsas* connecting the internal organs are—

(1) The spinal chord, coloured blue, running from the top of the brain to the genital organ.

(2, 3) The *rtsas* connecting the spinal chord with the two kidneys. These are also coloured blue, the kidneys being coloured a mottled pink.

(4) The *rtsa* from below the eighth vertebra to the liver (105). This is also coloured blue, the liver being coloured dark pink.

(5) The *rtsa* from below the tenth vertebra to the spleen (106). This is coloured dark pink, the spleen also being coloured dark pink.

(6–8) Three *rtsas* connecting the heart (104) and the lungs (102 and 103). These *rtsas* are coloured red, the heart and lungs being coloured dark pink.

The internal organs depicted on this figure do not bear any serial numbers in the Tibetan, except the bones of the spine, which are numbered from 1 to 20, the three supposed to be continued into the genital organ being numbered 1, 2, 3. I have given serial numbers to each entry for reference. This figure is coloured pink. The spinal cord is coloured blue, as also the cords leading from it to the kidneys (107 and 108), and the cord shown as leading from the eighth vertebra to the liver (105).

101. ཕ་ (pha). “Male.” This indicates the spinal cord, which is supposed to pass from the genital organs to the top of the brain.

102. གློ་བ་ (*glo-wa*). “The lungs.”

103. གློ་བུ་ (glo-bu). "The anterior lobes of the lungs."
104. སྙིང་ (snyiñ). "The heart."
105. མཚིན་པ་ (mchhin-pa). "The liver."
106. མཚེར་པ་ (mchher-pa). "The spleen."
107. མཁལ་མ་ (mkhal-ma). "The kidney" (right).
108. མཁལ་མ་ (mkhal-ma). "The kidney" (left).
109. བསམ་བསུ་ (bsam-bseu). "Seminal vesicle."
110. ༡, ༢, ༣ (figures 1, 2, and 3). Supposed additional vertebræ of the spine, continuing the spinal marrow into the genital organ.
111. དོན་སྟོང་ནང་འབྲེལ་སྤུས་པའི་རྩ་ཚིན་བརྒྱད་ཚོགས་པ་ནས་འབྲེལ་བའི་རྒྱལ་ (don-snod nañ-hbrel sbas-pai rtsa-chhen rgyad tshigs-pa nas hbrel-pai tshul). "The diagram showing the eight hidden chief arteries (rtsas) passing through the joints (of the vertebræ) and connecting the internal organs." This is the title of this diagram, which has been already noticed.

*The right-hand seated figure*

The title of this figure is (*vide* No. 119) "The diagram showing the religious wheel of the heart, in which the leaf-arteries collect in the centre with the five arteries by which the consciousness of the five doors (i.e. the five senses) passes to the back, front, right, left."

112. རྒྱལ་ (rgyab). "The back (artery)."
113. ཉོན་མོངས་ཡིད་ཀྱི་རྒྱ་བའི་རྩ་ (ñon moñs yid-kyi rgyu-wai rtsa). "The artery through which the misery of mind goes."
114. དབུས་ཡིད་བཟང་མ་ (dbüs yid-bzang-ma). "The middle artery of the good mind."
115. ཀུན་གཞིའི་རྣམ་ཤེས་རྒྱ་བའི་རྩ་གཡམ་ (kün-gñi-i rnam-ñes rgyu-wai rtsa-gyas). "The right artery of the going (of the) consciousness of the soul," viz. through which

the consciousness of the soul passes. ཀུན་གཞི་ (kün-gṣi), “soul” or “spirit,” indicates the seat of the passions as opposed to སེམས་ཉིད་ (sems ñid), the “spirit” as the seat of reason.

116. ཡིད་ཀྱི་རྣམ་ཤེས་རྒྱ་བ་གཡོན་ (yid-kyi rnam-śes rgyu-wa gyön). “The left artery of the going (of the) consciousness of the mind.” ཡིད་ (yid), “soul” or “mind,” is the power of perception, will, and imagination.
117. ཏ་ (ta). The letter ཏ་ (ta) is written in the centre of the heart, as this letter is the mystical symbol of the door of admission to all knowledge. The Tibetans place the seat of the memory in the heart, and not in the brain.
118. སློ་ལྔའི་རྣམ་ཤེས་རྒྱ་བ་སདུན་ (sgo-lñai rnam-śes rgyu-wa mdün). The front (artery) of the going of the consciousness of the five senses.
119. སླིང་ག་ཚེས་ཀྱི་འཁོར་ལོའི་ཙ་འདབ་དབུས་སུ་སློ་ལྔའི་རྣམ་ཤེས་རྒྱ་བའི་ཙ་ལྔ་རྒྱབ་སདུན་གཡམས་གཡོན་དུ་རྩྭ་གཡའི་རྩལ་། (snying - ga chhös - kyi lkhor-lo rtsa-hdab dbüs-su sgo-lngaï rnam-śes rgyu-wai rtsa-lnga rgyab-mdün gyas-gyön-du zug-pai tshul). “The diagram showing the religious wheel of the heart, in which the leaf arteries collect in the centre with the five arteries by which the consciousness of the five doors (i.e. ‘senses’) passes to the back, front, right, left.” This is the title of this diagram already referred to.
120. ཚག་གང་གི་ཚད་ (chhag-gañ-gi tshad). “The measure of the full hand.” This is a unit of measure taken across the second knuckles of the fingers when the hand is closed, as shown in the illustration given. The *chhag-gañ* consists of four *sors* (སོར་) or *sor-mos*, the *sor-mo* being the width of a finger across the

knuckle. This is the measure of the squares on the chart, each being one *sor*, by which the physician (am-chhi) is supposed to ascertain the correct position of each *rtsa* on the body, so as to ascertain the position of the different *rtsas*, and whether those of the patient are in the normal position.

121. རུཊུབ་གང་གི་ཚད་ (*hdzub-gan-gi tshad*). “The measure of the full finger.” The *hdzub-gang* is the length of the first finger. It is divided into six parts, of which each of the phalanges is supposed to contain two. As the phalanges are of different lengths these subdivisions are conventional.

#### A NOTE ON TIBETAN SURGICAL INSTRUMENTS

The present practice of surgery in Tibet is very simple, and, as already noted, consists chiefly of cupping, cauterizing, and bleeding. The Am-chhi informed me that the only instruments used are the cupping-bowl (མེ་བུང་ *me-pun*, or མེ་བུམ་ *me-bum*, both meaning “fire vessel”), in which paper is lit and the bowl is placed while hot over the part to be blistered; the sucking-horn (འཇིབ་རུ་ *ljib-ru*), by which cupping by vacuum is done; the cautery (ལྷགས་མེ་ *lchags-me*); the lancet (རྩ་བུ་ *rtsa-u*), for bleeding, and a golden lancet (གསེར་གྱི་རྩ་བུ་ *gser kyi rtsa-u*), for operating on the eye.

In the Journal of the Buddhist Text Society of Calcutta for 1894 three Tibetan block-prints are illustrated, which contain representations of a large number of surgical instruments, some of them of an elaborate nature, including specula, saws, catheters, exploring needles, instruments for tapping hydrocele, and midwifery and other forceps. The block-prints were brought by Rai Sarat Candra Das Bahadur from Lhasa,<sup>1</sup> and a description of the figures was

<sup>1</sup> Journal of the Buddhist Text Society, vol. ii, pt. iii, Calcutta, 1894, p. iii.







given by the late Lama Śes-rab mGya-mtsho, the Abbot of Ghoom Monastery, near Darjeeling, who was formerly physician to the late Tashi Lama, which were explained in a paper read by Dr. Sarada Prasad Banerji.<sup>1</sup>

If the elaborate and various instruments shown in the block-print were ever in general use they appear to have now ceased to be used.

<sup>1</sup> Journal of the Buddhist Text Society, vol. ii, pt. iii, Calcutta, 1894, pp. ix, x.