

ON THE MEDICAL DOCTRINES IN THE TANDULAVEYĀLIYA
2. TEACHINGS OF ANATOMY

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Translator's note

This article was written by Colette Caillat (1921–2007) and published in 1974 as, “Sur les doctrines médicales du *Tandulaveyāliya*: 2. Enseignements d’anatomie,” *Adyar Library Bulletin*, 38, *Mahāvīra Jayanti Volume* (1974b) 102–14. It was the second of a two-part analysis of the *Tandulaveyāliya*, the first examining the teachings of embryology.*

Caillat draws her analysis from Walther Schubring’s (1969) Prākṛit transliteration and German analysis and explanation of the *Tandulaveyāliya* (Skt. *Taṇḍulavaicārika*). Her citations use various styles to account for Schubring’s division of the text and the fluctuations between verse and prose. At times, in-text citations refer to a numbered verse in *āryā* or *śloka* meter (e.g. 1 a–b, or stanzas 1–139); at other times the page and line (e.g. p. 8,26 = p. 8, line 26).

Rather than follow Caillat’s convention of using abbreviations for texts, I created a standard bibliography. I have used endnotes rather than footnotes in order to keep the three pages of Table 1 uninterrupted. I have tried to offer clarifications in the text and footnotes where needed, using brackets [] to signify (a) missing words, (b) definitions, (c) clarifications, or (d) alternate language spellings.

Although the *Tandulaveyāliya* has not yet been translated, this article on anatomy, along with Caillat’s earlier analysis of embryology, demonstrates that the author of this Jain text was deeply aware of the classical Indian medical texts and treatises of the period, at times drawing from them directly, at times diverging, while also offering altogether new insights. Though I did not know Colette Caillat in life, I feel I have gained a small glimpse of her through these translations, and I hope readers will feel the same. I thank S. C. Kaplan at Rice University for her expert review of my translation, though any errors are mine.

* * * *

[104] The *Tandulaveyāliya* is a short paramedical text found in the collection of *Paiṇṇaya* (Skt. *Prakīrṇaka*), or “Mixtures,” that most Śvetāmbara Jains hold as canonical, although they are marginal and relatively late.¹ The title *Tandulaveyāliya* (Skt. *Taṇḍula-vaicārika*) refers to the “grains of rice”² [that a male individual consumes during a lifetime of one hundred years]. For

soteriological purposes, [the text] uses ideas that seem to be borrowed from scientific observation and theory. Therefore, it remains to be determined, among other things, what possible affinities exist between the medical teachings that this pious literary work dispenses to the faithful and the classical doctrines of Indian medicine.

To contribute to this research, I have, in a previous study,³ examined the first section of the *Tandulaveyāliya*, which provides a general presentation of arguments based on data related to gynecology and embryology. Apart from some instructive observations, I find that in these subjects, the *Tandulaveyāliya* apparently tries to propose a synthesis of two doctrines: the one, typically Jaina, can be traced back to the beginning of the canon, while the other is closely related to classical Indian doctrine as expressed in the renowned *Caraka-saṃhitā* and [105] *Suśruta-saṃhitā*.⁴ Through the analysis, it appears that the *Tandulaveyāliya* takes as a point of departure the teachings which had been outlined in the ancient *Sūyagaḍaṅga* (Skt. *Sūtrakṛtāṅga*; the 2nd *aṅga* of the canon), and which are [later] presented more systematically and more completely in the encyclopedic *Viyāhapannatti* (Skt. *Vyākhāprajñapti* or *Bhagavatī-sūtra*; the 5th *aṅga* of the canon). However, although the prose exposition of the *Tandulaveyāliya*⁵ reproduces the prose of the *Viyāhapannatti*, often to the letter, it sometimes alters the order of [embryological] development. Moreover, the text inserts additions here and there, of variable scope, so that the information transmitted by the ancient canonical books is, depending on the case, completed or markedly transformed. The details of this more recent text sometimes bring to mind the *Caraka-*, and sometimes the *Suśruta-saṃhitā*. On every occasion, the divergences separating the *Sūyagaḍaṅga* and *Viyāhapannatti* from the *saṃhitās* are clearly blurred in the *Tandulaveyāliya*, even at the price of obscurities and awkward expressions.⁶ So does the teaching professed in the *Tandulaveyāliya* result from a restructuring that is entirely inspired by the doctrines recorded in the *Caraka-* and *Suśruta-saṃhitā*?

In the light of the preceding observations, this conclusion may seem well-founded, at least for the first paragraphs of the *Tandulaveyāliya*, which deal mainly with embryology. But it is much more uncertain when we consider the lessons that follow, answering [the earlier paragraphs] in [106] chiasm⁷ [by reversing the order], and thus completing, to some extent, the technical part of the text, before offering final exhortations of a clearly religious character (ed. Schubring p. 14,25 [starting at 35a]–15,24⁸; the text, along with the *vṛtti*, is cited in *Abhidhāna Rājendra 7*, s.v. *sarīra*, pp. 554–56 [in the 1934 reprint], §24).

The *Tandulaveyāliya*, at this point, introduces a summary of anatomy. Predictable in a work related to medicine, this is a commonplace [topic], that recurs in prescriptive books in Sanskrit as scholars have noted.⁹ More specifically, the affinity between the osteology teachings [regarding bones and skeleton] as summarized in long enumerations found in the [Brahmanic *smṛtis* such as] *Viṣṇu-smṛti* and *Yājñavalkya-smṛti* and the teachings in medical treatises has been recognized. Jolly has detailed these doctrinal similarities in a very useful table, to which the present analysis can add some further development [Table 1].

The table provides a list of the principal elements that constitute the human body, according to and in the same order as the *Tandulaveyāliya*; data provided by the other schools is also included. One will find that the *Tandulaveyāliya* does not describe the details of osteology - as do the *Caraka-* and *Suśruta-saṃhitās*, as well as the *Viṣṇu-smṛti* and *Yājñavalkya-smṛti*; rather, the text limits itself to presenting an overview of anatomy and a glimpse into human physiology. Additionally, this [physiological] dissection of the [hu]man of our times counterbalances the portrait of the [hu]man of the past [107] which had been outlined a few lines earlier. The perfections of the latter had been qualitatively, rather than quantitatively, enumerated throughout a *vaṇṇaya*, or description in rhythmic prose [that is] more or less formulaic, another *locus communis* - in the Jaina canon, at least.¹⁰

It is easy to compare these statements and Jolly's inventory in the table and analysis of *Medicin*, §35. Still, some observations are necessary.

The teachings of the *Tandulaveyāliya* are neither exhaustive nor systematic. It lists and reviews a limited number of organs, with several of the provided descriptions being verifiable by common observation. In doing so, the *Tandulaveyāliya* proceeds less in the manner of the *Viṣṇu-smṛti* and *Yājñavalkya-smṛti*, or *Caraka-* and *Suśruta-saṃhitās*, than in the manner of the *Garbha-upaniṣad*, which it also parallels when addressing the humors (on which, more to come). Particular importance, however, is given to several internal organs, especially those whose role is theoretically considered decisive by the whole Indian tradition (such as *mamma* [vital points] and *sirā* [vessels], which I describe below). For the rest, the *Tandulaveyāliya* adopts the same postulates as the *Suśruta-saṃhitā*; for example, both take the anatomy of man as standard, in relation to which are defined, if applicable, that of the woman as well as that of the eunuch or the asexual individual, "neuter" (*paṇḍaga* [Skt. *paṇḍaka*], p. 15,17 and 15,24; *napuṃsa(ga)* [Skt. *napuṃsaka*], p. 6,33; *śloka*s 16 and 23).

[108]

Table 1: Doctrinal similarities and differences between the *Tandulaveyāliya* and other ancient Indian medical texts. Source: Jolly, *Medicin*, §35.

Organs, etc., listed in the <i>Tandulaveyāliya</i>	<i>Tandulaveyāliya</i> (equivalences in kg. according to <i>Śārīrāgadhara-saṃhitā</i> : 1 pala=0.093312 kg. [or ≈0.2 lbs])	<i>Suśruta-saṃhitā</i>	<i>Caraka-saṃhitā</i>	<i>Viṣṇu-smṛti</i> and <i>Yājñavalkya-smṛti</i>	<i>Vārāha-pariśiṣṭa</i>	<i>Garbha-upaniṣad</i> (equivalences in kg. following Deussen [1897])
Joints of the vertebral column (<i>piṭṭha-karaṇḍaga-saṃdhi</i>) ¹¹ vertebrae (<i>karaṇḍa</i>) ¹² lower rib cage (<i>kaḍāha</i>) ¹³ abdomen (<i>kucchī</i>) neck (<i>jīvā</i>) tongue (<i>jibbhā</i>) eyes (<i>acchī</i>) head (<i>sira</i>) teeth (<i>danta</i>) face (<i>jihā</i>) heart (<i>hiyaya</i>) liver (<i>kālejja</i>) intestines (<i>anta</i>)	number: 18 number: 12 ribs number: 6 ribs measure: 2 “hands” measure: 4 “thumbs” [one thumb being approx. 1in] (→ [approx.]10 cm) ¹⁴ weight: 4 pal(i)ya weight: 2 pal(i)ya composition: 4 flat bones (<i>kavāla</i>) number: 32 measure: 7 “thumbs” [inches] (→20 cm) weight: 3½ pal(i)ya weight: 25 pala (→2.350 kg [or ≈5.1 lbs]) measured: 5 fathoms [Old English unit to measure arm to arm; ≈ 6 feet] (→8 m.) number: 2 (<i>thūl’a</i> , <i>taṇuy’a</i>)	(thorax: 36 x 2 =72 bones number: 9 bones number: 1 6 bones 32	24 ribs (+24 <i>sthāla</i> +24 <i>arbuda</i>) 15 bones 4 <i>kapāla</i> 32	column and ribs: 72 bones 15 4 <i>kapāla</i> 64 including alveoli	(? 36 x 2) ¹⁵ 15 (6 bones?) 16 x 2	12 pala (=0.546 kg [or ≈1.2 lbs]) 4 <i>kapāla</i> 8 pala (=0.364 kg. [or ≈0.8 lbs])

[108, pt. 2]

Organs, etc., listed in the <i>Tandulaveyāliya</i>	<i>Tandulaveyāliya</i> (equivalences in kg. according to <i>Śāringadhara-saṃhitā</i> : 1 pala=0.093312 kg. [or ≈0.2 lbs])	<i>Suśruta-saṃhitā</i>	<i>Caraka-saṃhitā</i>	<i>Viṣṇu-smṛti</i> and <i>Yājñavalkya-smṛti</i>	<i>Vārāha-pariśiṣṭa</i>	<i>Garbha-upaniṣad</i> (equivalences in kg. following Deussen [1897])
sides/flanks (<i>pāsa</i>)	number: 2 (<i>vāma, dāhiṇa</i>)					
joints (<i>saṃdhi</i>)	160	210	200	200		180
vital points (<i>mamma</i>)	107	107	107	107		107
connected bones (<i>aṭṭhi-dāma</i>)	300	300 ("360 according to <i>Āyurveda</i> ")	360	360	360	360
ligaments (<i>nhāru</i>)	900	900	900	900		900
vessels (<i>sirā</i>)*	700	700	700	700	700	700
female	-30					
neuter (third-sex)	-20					
muscles (<i>pesī</i>)	500	500	400	500	500	500 (See correction, Deussen p. 610)
female	-30	+20				
neuter (third-sex)	-20					
large vessels (<i>dhamāni</i>)	9	24	200 <i>sirā</i> ... excluded)	200 <i>sirā</i> ... excluded)		
pores (<i>roma-kūva</i>)	9,900,000 ¹⁶ or 35,000,000		29,956 (x 2)	more than 500,000,000		<i>roma</i> : 45,000,000

<i>Tandulaveyāliya</i>	<i>Suśruta-saṃhitā</i>
<p><i>Tandulaveyāliya</i></p> <p>*Note: The count of the <i>sirā</i> is as follows:</p> <p>From the umbilical region, upwards: 160</p> <p> Downwards: 160</p> <p> Transversely: 160</p> <p> Downwards, to the anus: 160</p> <p>Carriers of bile (<i>pitta-dhāriṇi</i>): 25</p> <p>Carriers of phlegm (<i>simbha-dhāriṇi</i>): 25</p> <p>Carriers of sperm (<i>sukka-dhāriṇi</i>): 10</p> <hr/> <p>700 Total</p>	<p><i>Suśruta-saṃhitā</i></p> <p>[Vessels that]</p> <p>Transport wind (<i>vāta-vāhinī</i>): 10 large/175 small</p> <p>Transport bile (<i>pitta-vāhinī</i>): 10 large/175 small</p> <p>Transport phlegm (<i>kapha-vāhinī</i>): 10 large/175 small</p> <p>Transport blood (<i>rakta-vāhinī</i>): 10 large/175 small</p> <hr/> <p>700 Total</p>

[109]

Organs, etc., listed in <i>Tandulaveyāliya</i>	<i>Tandulaveyāliya</i> (equivalences in kg. according to <i>Śārngadhara-saṃhitā</i> : 1 pala=0.093312 kg. [or ≅0.2 lbs])	<i>Suśruta-saṃhitā</i>	<i>Caraka-saṃhitā</i>	<i>Yājñavalkya-smṛti</i>	<i>Vārāha-pariśiṣṭa</i>	<i>Garbha-upaniṣad</i> (equivalences in kg. following Deussen [1897])
blood (<i>ruhira</i>)	1 āḍhaya (→6 kg. [or ≅13.2 lbs])		8 añjali (<i>śonita</i>)	8 añjali (<i>rakta</i>)		
fat (<i>vasā</i>)	½ āḍhaya (→3 kg. [or ≅6.6 lbs])		3"	3"		
brain (<i>matthuluṅga</i>)	1 pattha (→1.500 kg. [or ≅3.3 lbs])		½" (<i>mastiṣka</i>)	½ "		
urine (<i>mutta</i>)	1 āḍhaya (→6 kg. [or ≅13.2 lbs])		4"	4"		} variable, according to the quantity of food
feces (<i>purīsa</i>)	1 pattha (→1,500 kg. [or ≅3.3 lbs])		7"	7"		
bile (<i>pitta</i>)	1 kuḍava (→0.375 [kg.]) [or ≅0.8 lbs])		5"	5"		1 prastha (0.728 kg. [or ≅1.6 lbs])
sperme (<i>sukka</i>)	½ kuḍava (→0.190 kg. [or ≅0.42 lbs])		½ "		1 kuḍava	1 kuḍava (0.182 kg. [or ≅0.4 lbs])
<phlegm (<i>simbha</i>) ¹⁷	1 kuḍava (→0.375 kg. [or ≅0.8 lbs])		6"	6"		1 āḍhaka (2.912 kg. [or ≅6.4 lbs])
abdominal organs (<i>koṭṭha</i>) female	5 6	(cf. 7 8 <i>āsāya</i>)	(? cf. 15 <i>koṣṭāṅga</i>)			
ducts (<i>soa</i>) female	9 ^^	9 +3 (including one pair)	9 (<i>chidra</i>)			

[111] The Western reader notes the care with which the particularities of the *napuṃsaka* are regularly noted.

Although the *Tandulaveyāliya* is not characterized by a fundamental originality, it sometimes adopts relatively autonomous positions, more or less distant, depending on the issue, from those that are found in the Brahmanical treatises.

On one point, it is clear that the text does not conform to the practice attested in *Caraka-saṃhitā*, etc., but [rather] to that which the *Vārāha-pariśiṣṭa* and *Garbha-upaniṣad* reflect; like these last two [texts], it evaluates the humors and viscera in [terms of measurements such as] *pala* and *kuḍava* ... ; was this [because] the use of [the measurement] *añjali* in the *Caraka-saṃhitā* and *Yājñavalkya-smṛti* was somewhat ambiguous?¹⁸

In other cases, it is difficult to discern the affiliations of the *Tandulaveyāliya* with the other traditions. Naturally, when the number of organs is fixed without any variant in the medical tradition, the *Tandulaveyāliya* is not distinguished by any particularity (such as *mamma*, or on *sirā*, more to come). If discrepancies exist, the *Tandulaveyāliya* is [112] often closer to the *Suśruta-* than to the *Caraka-saṃhitā* ([for example,] 500 *pesī* [muscles], 300 *aṭṭhi* [connected bones]; *soa* [ducts], partially). Sometimes the *Tandulaveyāliya* seems unaffiliated [with any other text], although this fact is not necessarily significant ([on topics such as] *saṃdhi* [joints], and especially *roma-kūva* [pores], on which almost all the texts differ). In such a case, sometimes the information provided by the *Tandulaveyāliya* may not be irreconcilable with conventional data (compare the text's numbers of *soa/śrotas* [ducts], *koṭṭha/āsāya* [abdominal organs; Skt. *koṣṭha*]). At other times, the position of the *Tandulaveyāliya* is singular, and in blatant disagreement with the *Caraka-* and *Suśruta-saṃhitā*. For example, according to the *Tandulaveyāliya*, the woman and the *paṇḍaga* [Skt. *paṇḍaka*] [neuter/third sex] appear to have, respectively, 30 and 20 fewer *sirās* and 30 and 20 fewer *pesīs* [muscles] than the man, whereas, according to the *Suśruta-*, the woman is supposed to possess 20 extra *pesīs*. But the *Tandulaveyāliya* certainly does not deliver these figures by accident: we see the text drawing attention to the *sirās*. The text evidently judges the [vessels'] functions to be very important since it adds some rudiments of physiology and pathology to their description (p. 14,38–15,16); in this way, [the *Tandulaveyāliya*] spends more time on the description of these organs than on that of any other. Within certain limits, therefore, the *Tandulaveyāliya* can be regarded as relatively independent of the *Suśruta-* and the *Caraka-saṃhitā*, as well as other ancient medical texts.

Summary

The brief teaching of elementary anatomy offered in the *Tandulaveyāliya* broadly agrees with classical medical doctrines and, indeed, with the Indian tradition as a whole. In the details, on the

other hand, discrepancies appear between the *Caraka-* and *Suśruta-saṃhitās* and the *Tandulaveyāliya*, differences that sometimes prove insignificant and sometimes irreducible.

[113] Without being identical, the situation is analogous to that found in the chapter on embryology. Recall that in the initial section of the *Tandulaveyāliya*, certain discordances, external and internal, are obviously explained by the diversity of sources imposed upon the author of the treatise. It is probable that in the chapter devoted to anatomy, the text likewise perpetuates traces of particular or marginal traditions, some of which are also attested to in relatively minor Brahmanical texts. Would the other-traces reflect sectarian traditions? Whatever may have been the genesis of the *Tandulaveyāliya*, it seems that the writer wished to present a synthesis of opinions accredited in various circles among his contemporaries, and perhaps even [among] their predecessors.¹⁹

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* This analysis follows an earlier examination of a different section of the same text. See Colette Caillat 1974a, 2018.

¹ See Schubring, *Lehre* § 50; Alsdorf, *Etudes jaina*, pp. 31f.

² On this title, see Schubring *Lehre* § 50; Schubring, *Tandulaveyāliya*, p. 21.

³ See Caillat, "Sur les doctrines."

⁴ To designate the schools or circles whose views the diverse treatises cited above express, I use simply *Car*, *Suśr.* or *Sūy*, *T*, *Viy*.

⁵ Compare, in particular, *Tandulaveyāliya*, p. 5, 1-34 and *Viyāhapannatti* 406, 7-25.

⁶ On these various points, see Caillat, "Sur les doctrines."

⁷ On the structure and style of the *Tandulaveyāliya*, see Schubring, *Tandulaveyāliya*, p. 21, as well as Deleu, 1972, p. 129.

⁸ [In the earlier version of the *Tandulaveyāliya* that Schubring is working from, the pages for this religious exhortation that conclude the text are found on page 35 and following.]

⁹ Jolly 1901, p. 42, § 35.

¹⁰ See Schubring, *Tandulaveyāliya*, p. 28 - See also the more general study of this theme by Mette 1973.

¹¹ *prṣṭhi-karaṇḍaka=prṣṭhi-vaṃśa*, *vṛtti*, in the *Abhidhānarājendrakōṣa* 7², p. 555 (s. v. *sarīra*, section 24).

¹² *karaṇḍaka=vaṃśaka* - See Ratnacandra, *Ardha-Magadhi Dictionary*, s. v. *karaṇḍaya*, "the spinal cord."

¹³ *kaḍāha*, "the ribs," See Ratnacandra, *Ardha-Magadha Dictionary*, s. v. 3.

The commentary (*vṛtti*) specifies the location and configuration of these ribs (see *Abhidhānarājendrakōṣa*) *tasminn eva prṣṭhivaṃśe śeṣa-ṣaṭ-saṃdhibhyaḥ ṣaṭ pāṃśulikā nirgatyā pārsva-dvayan āvṛtṭya hṛdayasyōbhayato vakṣaḥpañjarād adhastāc chithila-kukṣes tūpariṣṭāt parasparāsammilitās tiṣṭhanti*: "Of the six remaining joints, on this same vertebral column, six ribs are present; they enclose both sides, surrounding the heart, and are located at the base of the rib cage and above the soft abdomen, without touching each other."

The commentary-earlier notes that each side contains six floating ribs under twelve true, fixed ribs (*teṣu cāṣṭadaśasa saṃdhiṣu madhye dvādaśabhyaḥ saṃdhibhyo dvādaśa pāṃśulikā nirgatyōbhaya-pārsvāv āvṛtṭya, vakṣaḥsthala-madhyōrdhva-vartṭy-asth(ī)ni lagitvā pallakākāratayā pariṇamanti . . .*). The total would therefore be $(18 + 12 + 6) \times 2 = 72$ elements: a number that is consistent with that of other traditions. For example, to compare the counts of trunk bones in the various treatises in Sanskrit, see Hoernle 1907, in particular, [descriptions] on the sternum and ribs, p. 141 and following; on the spine, p. 148, and following. (especially pp. 145, 151).

¹⁴ For all of these conversions, see n. 17 below. Throughout the chart, the symbol → means "approximately."

¹⁵ See the readings in Rolland 1972, p. 135: 1.25 *ṣaṭ-triṃśā* (gap); 1.26-27 *ekaṃ gaṇḍa-kūta-lalāṭa-niṣa śīrṣa-kapālāni* (and also note c; reverse the lines 34-35).

Compare *Suśruta-saṃhitā* 3, 5, 19: *pārsve ṣaṭ-triṃśad ekasmin, dvitīye'py evam; et ṣaṭ śīrasi*.

¹⁶ Depending on whether you exclude or include beard hair, etc. Similarly, see the *Tandulaveyāliya*, p. 5, 10–11.

¹⁷ *pittassa kuḍavo, simbhassa kuḍavo, sukkassa, Abhidhānarājendrakoṣa* 7², p. 555; s. k. missing in Schubring's edition.

¹⁸ See *Caraka-saṃhitā* 4, 7, 14: *svenāñjali-pramāṇena*, “according to the measure of his own hands [*añjali*].” According to Apte, 1890, s.v., 1 *añjali*=1 *kuḍava* (=1/4 of *prastha*=1/16 *āḍhaka*).

In the Tables provided in this essay, the conversions in kg. (according to the *Śārṅga-dhara-saṃhitā*) are proposed as a guide, although with reservations, given the local variations of weight units in India. The comparison of the accounts in the *Garbha-upaniṣad* and *Tandulaveyāliya* makes it possible to observe the extent of certain fluctuations, even though the unit used in the different texts bears the same name. Moreover, the orders of magnitude considerably exceed modern evaluations [of these anatomical parts], perhaps with the exception of blood (see, among others, the weight of the liver, urine - and the 190 g of sperm, instead of 1.5-2cm³ in real [measurements]). *Śārṅgadhara-saṃhitā*, see Filliozat and Renou 1953: 758.

¹⁹ There is no shortage of examples that a single work has borrowed from several sources or traditions. It will suffice here to recall the facts found in another *Paiṇṇaya*, [the] *Gaṇivijjā* (Schubring 1969: 133–34); as well as in the medical sections of the *Yājñavalkya-smṛti* and [perhaps] of the *Viṣṇu-smṛti* (see Meyer 1928: 51, 58) - See also (by way of Hoernle 1907, cited above), the reflections of Barth, *Oeuvres*, 5: 298.