CHAPTER 24

Al-Jildakī (*fl.* 8th/14th Century) on the Alchemy of the Senses

Christian Lange

1 Introduction

ʿIzz al-Dīn Aydamir b. ʿAlī al-Jildakī is a towering figure of the occult sciences in the Islamic world (Ullmann, 237).[1] Ottoman alchemists considered him "one of the greatest authorities of the art" (Artun, 22–3). It is curious, therefore, that his work has received so little scholarly attention. There are to date no reliable editions and only a handful of short studies and translations of his writings (Corbin, "Commentaire"; Harris; Holmyard). His name is mentioned on no more than a couple of pages in two recently published edited volumes that summarize the state of the art of scholarship on magic and the occult in Islam (Günther and Pielow; Saif et al.). The situation is certainly not helped by the fact that al-Jildakī's oeuvre is intimidatingly vast and often difficult to understand. As Manfred Ullmann has noted, "[t]he enormously rich content" of his work, "which contains theological, philosophical, cosmological, physics, and astrological thoughts as well as letter magic and alchemy, will hardly ever be completely exhausted by scholarship" (Ullmann, 240).

There is little that we know about al-Jildakī's life. Henri Corbin once suggested that he hailed from Jaldak, a village north of Mashhad, and that his name therefore ought to be spelled al-Jaldakī (Corbin, *Histoire*, 331). However, most scholars now seem to agree on the spelling al-Jildakī (see Forster and Müller). Nicholas Harris has established that the young al-Jildakī, the offspring of a Turkish *mamlūk* serving the Mamluk Empire, was active in Damascus around 737/1336–7. Against Brockelmann and Ullmann, who give 743/1342 as al-Jildakī's death date (*GAL*, 2:138; Ullmann, 238), Harris suggests that al-Jildakī died "well into the second half of the 8th/14th century" (Harris, 547).

Al-Jildakī's *Proof on the Secrets of the Science of Balances* (*K. al-Burhān fī asrār ʿilm al-mīzān*), an excerpt of which is translated below, is a sprawling compilation of occult knowledge in four parts. As its title indicates, the *Proof* seeks to

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explicate and promote the "science of balances" (*ʿilm al-mawāzīn*). The theory of balances was a central element in the thought of the famous alchemist from Kufa, Jābir b. Ḥayyān (d. 200/815?); it forms the bedrock of Jābir's cosmology (see Kraus, 2:187–303).[2] As Jābir and his followers maintained, all bodies in the earthly and heavenly spheres, including metals and the various parts and organs of the human being, are governed by the relationship of their hot, cold, dry, and moist elements. This fourfold division maps onto the four elements, the four humors, and the four basic metals. In his *Proof* (see the translation by Corbin, "Commentaire," 44–5), al-Jildakī provides the following basic matrix:

TABLE 24.1 The four mixtures and their corresponding elements, humors, and metals according to al-Jildakī

Mixture	**Element**	**Humor**	**Metal**
Cold and moist	water	phlegm	mercury
Cold and dry	earth	black bile	lead
Hot and dry	fire	yellow bile	copper
Hot and wet	air	blood	iron

By computing and manipulating the balance of properties, alchemists are able to bring about the transmutation of bodies, purifying and perfecting them, and thus investing them with special powers and abilities. Following al-Jildakī, the Jābirian theory of balances found prominent followers in Ottoman times, notably in the so-called ʿAlī Çelebi corpus, which dates to the second half of the 10th/16th century (Artun, 29). A passage from al-Jidakī's discussion of the human sense of smell appears in the trilingual Qurʾān commentary of the Ottoman scholar and mystic Ismāʿīl Ḥaqqī Bursavī (d. 1137/1725).[3]

Al-Jildakī discusses the five senses in Part Four of his *Proof*, in the Third Section ("On the natural world"), in the First Book, the *Book of the Human Being* (*Kitāb al-Insān*), which deals with the anatomy, physiology, and psychology of the human being. The following paragraphs are a precis of the *K. al-Insān* (al-Jildakī, fols. 11b–68a), with a more detailed summary of the chapters devoted to the five senses, to help comprehension of the translation below.

2 Next to a long list of other writings, Jābir b. Ḥayyān is the author of a (lost?) *K. al-Ḥiss wa-l-maḥsūs* (Kraus, 1:110 [no. 824]).

3 See the chapter on Bursavī in *ISH*, vol. 3.

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Following the introduction to the *K. al-Insān* (a discussion of the superiority of human beings over the angels in heaven), al-Jildakī first describes the human soul (*nafs*) and its faculties (*quwā*) in general terms. The human soul (*nafs*), he states, is an indivisible essence that is neither continuous with, nor discontinuous from, the body. The balance (*mīzān*) of the human body is determined by the effect (*ta'thīr*) of the soul on the body. Next to the soul, al-Jildakī posits the existence of a spirit (*rūḥ*) in the human being. Like the soul, the spirit contributes to the human being's balance. It is a subtle essence created by God's command (*amr Allāh*); it survives the body after death.

Next, al-Jildakī dedicates several chapters to discussing the human being as a mesocosm (*'ālam awsaṭ*). He outlines several analogies between the body and natural phenomena of the macrocosmos. For example, he states that God placed vision (*al-baṣar*) in the two eyes, like He placed the sun and the moon in the sky (Jildakī, fol. 13a). In another chapter, he states that the human body is an "occult city" (*madīna muṭalsama*). Al-Jildakī then turns to a detailed analysis of the human soul and its faculties (*quwā*). He relates that the outer and inner faculties of the soul are connected by the *sensus communis* (*al-ḥiss al-mushtarak*). He enumerates the essential faculties (*quwā aṣliyya*) of the soul, devoting a separate chapter to each of them. These faculties include, among others, the vegetative, appetitive, generative, locomotive, and perceptual faculties. It is in the context of the latter that al-Jildakī finally arrives at his discussion of the five outer senses (*ḥawāss ẓāhira*), the roots of which he locates in the three ventricles of the brain.

Muslim theologians and jurists usually start their discussion of the senses with hearing and then proceed to deal with vision, taste, smell, and touch.[4] Al-Jildakī follows a different order, one that is often found in the Islamic philosophical tradition (see, for example, Ibn Sīnā, *Nafs*, 85–141; Ikhwān al-Ṣafā', 2:401–13): touch, taste, smell, hearing, and sight.[5] Al-Jildakī leans heavily on the discussion of the five senses in Ibn Sīnā's (Avicenna, d. 428/1037) chapter on the soul in the *Physics* (*K. al-Ṭabī'iyyāt*) section of his *Book of Healing* (*K. al-Shifā'*), sometimes paraphrasing him, sometimes quoting him verbatim.[6] Like Ibn Sīnā (*Ḥayawān*, 260, 263–5), al-Jildakī relates facts about the physiology of the human senses, and then adds observations about animal sensation.

4 For the theologian-cum-jurist Ibn Qayyim al-Jawziyya (d. 751/1350), see *ISH*, vol. 2, ch. 32; for the jurist al-Zarkashī (d. 794/1392) and the theologian al-Ījī, see the chapter on al-Zarkashī in *ISH*, vol. 3.

5 For the Ikhwān al-Ṣafā', see *ISH*, vol. 2, ch. 18. For Ibn Sīnā, *see ISH*, vol. 2, ch. 15. However, in *K. al-Najāt* (26–7), Ibn Sīnā uses a different sequence: vision > hearing > smell > taste > touch.

6 For some of the direct borrowings from Ibn Sīnā's text, see the footnotes to the translation.

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The fact that Ibn Sīnā was an outspoken critic of the occult sciences, and of astrology and alchemy in particular (Wiedemann, 26), does not seem to have deterred al-Jildakī.

Al-Jildakī rehearses Ibn Sīnā's argument that touch is the most basic and important sense, because no living being can survive without it. Taste is a form of touch, but in addition requires the saliva of the mouth as medium. Smell is the sense that becomes worn most quickly. Sound is perceived in the form of air waves entering the inner ear. As regards vision, al-Jildakī first relates, in Ibn Sīnā's vein, several elements of the intromissionist theory of vision, such as the notion that forms are imprinted in the eye like images are imprinted on the surface of mirrors. Then, however, al-Jildakī pivots to an extramissionist position, stating that vision results from an "inner light that rises from the heart to the visual organ and from there is aimed at the seen objects, like the rays cast by the stars" (al-Jildakī, fol. 38b). There seems to be no trace of Ibn al-Haytham's (d. ca. 430/1040) *Optics* (*K. al-Manāẓir*) in al-Jildakī's *K. al-Insān*.[7] Either al-Jildakī was unaware of Ibn al-Haytham's work, or he chose to ignore it.

In line with his alchemical, thaumaturgical outlook on the human being, al-Jildakī makes sensory perception contingent on the organic and spiritual balance with which people are born, or which they acquire with the help of the alchemist-physician. According to al-Jildakī, the essence of the human being (*dhāt al-insān*) is shrouded in layers of "thin, opaque veils" (al-Jildakī, fol. 36a) that hamper the sensorium. People must achieve inner purity (*ṣafā'*) in order to sharpen their senses. Properly purified, people perceive minute sensory stimuli, such as sights seen from a great distance, the sound made by ripples of water, or the faint perfume of objects smelled "over a distance of a mile or more." Like Ibn al-'Arabī (d. 638/1240), who describes the awe-inspiring sensory powers of certain "masters of sensation,"[8] al-Jildakī posits the existence of a miraculously sensitive elite, whom he refers to as "the people of mystical disclosure" and "the people of devotion and purity" (al-Jildakī, fols. 36b, 38b). Not only do these people perceive things with greater sensitivity and precision, they hear the voices of spiritual beings and see the angels. They even understand the language of the birds and other animals.

The remaining chapters of the *K. al-Insān* are as follows: the inner senses (*ḥawāss bāṭina*), like the outer senses, are located in the three ventricles of the brain. They are the *sensus communis* (*al-ḥiss al-mushtarak*), the imaginative

7 For Ibn al-Haytham, see *ISH*, vol. 2, ch. 21.

8 For Ibn al-'Arabī, see *ISH*, vol. 2, ch. 36. Cf. also Jalāl al-Dīn Rūmī's (d. 627/1273) alchemical (!) notion that the saints enjoy "golden senses," as opposed to the "copper senses" of the common people. See *ISH*, vol. 2, ch. 38 (§ 6).

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(*muṣawwira*), estimative (*wahmiyya*), retentive (*ḥāfiẓa*), and thinking (*mufakkira*) faculties.[9] The faculties that human beings possess to the exclusion of other animals are theoretical (*naẓarī*) as well as practical (*ʿamalī*). The rational soul (*al-nafs al-nāṭiqa*), one of these faculties, has four tiers, or levels (*marātib*). Al-Jildakī devotes a separate chapter to the imagination (*al-quwwa al-khayāliyya yaʿnī l-mutakhayyila*). The final pages of the *K. al-Insān* deal with sundry topics: death; the *barzakh*; the heat on the inside the core of the human being (*dhāt al-insān*); the eternal bliss and punishment of the soul after death; as well as further taxonomies of the human soul and body. The last chapter concerns the special properties of human hair.

The following translation is based on the 11th/17th-century MS Arabe 1355 of the French National Library (Bibliothèque Nationale de France), which was compared to the 12th/18th-century MS Sprenger 1916 of the Berlin State Library (Staatsbibliothek zu Berlin). While the Paris manuscript conveniently includes a table of content and overall reads more easily, the Berlin manuscript, written in a more elegant hand, seems textually sounder. However, in the passage translated below, there are no substantial textual differences between the two. In at least one instance, both manuscripts agree on a copyist's mistake (see below, footnote 18).

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9 On the inner senses, see *ISH*, vol. 2, chs. 30 (al-Ghazālī), 39 (Saʿdī), and passim.

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WKAS.

2 Translation

ʿIzz al-Dīn Aydamir b. ʿAlī al-Jildakī, *K. al-Burhān fī asrār ʿilm al-mīzān*, MS Paris BNF, Arabe 1355, fols. 34b–39a (= MS Berlin State Library, Sprenger 1916, fols. 65b–67a).

[*fol. 34b*] [*§ 1.*] *The First Sense: Touch*

Know that the first of the aforementioned five senses, which are common to all living beings (*ḥayawān ḥayy*), is the sense of touch. Every living being requires this sense. For the entire composition of a living being, in its primary composition (*fī l-tarkīb al-awwal*),[10] [fol. 35a] results from the essential tactile

10 That is, in its "natural" state, as opposed to the altered state achieved by the use of the medical or alchemical arts (*ṣanʿa*). According to Jābir b. Ḥayyān, Balīnās (Apollonius of

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properties of [sensed] objects. Also [the soundness of] its mixture (*mizāj*) results from them, while its corruption is on account of a disagreement with them. If you are discerning, you ought to realize how much of [a body's] mixture and balance depends on this sense. By researching [how] it [works] in the *mundus artificiosus*,[11] you will learn things you did not know.

The five senses are scouts (*ṭalīʿa*) for the soul.[12] By definition, scouts are able to indicate the things that ward off harm from the palace[13] and that ensure its flourishing. Know this! For it is knowledge, knowledge acquired through research (*ʿilm min ʿilm al-taḥqīq*), about the effects of the brilliant wisdom and the mighty power that God the Exalted has granted humankind and all the other living beings that are below it, by creating these five senses, the first of which is touch.

It is unlikely that a living being should possess the sense of touch but lack the locomotive faculty. For, if it senses something that agrees [with it], it will seek [to obtain] it, and if it senses something that disagrees with it, it will avoid it.

The things perceived by it are hotness, coldness, moistness, and dryness. Among the concomitant attributes (*lawāzim*) of these four qualities are smoothness and roughness, lightness and heaviness, and the likes of them, such as hardness and softness, stickiness and brittleness, and so on. We will discuss these in [the chapter dealing with] the regulation of balances according to the science of the *mundus artificiosus*.[14]

One should consider that the sense of touch has many faculties and multiple ways of perceiving, as we shall explain presently, God the Exalted willing. The sense of touch is capable of perceiving two opposite tactile stimuli felt in one and the same faculty. Thus, it is possible to perceive heaviness, roughness, [fol. 35b] hardness, and other [attributes] by a [single] touch in the moment when the sensory organ connects with or disconnects from [an object].[15] However, hotness and coldness cannot be perceived in this [integrated] way. That is, the two are not sensed in a similar way in all the loci of touch.

Tyana, *fl.* first century BCE) distinguished between two different creations, the first being divine (*ilāhī*), the second "artificial" (*maṣnūʿ*), the result of human art (cf. the following footnote). See Kraus, 1:100–1. Ibn Sīnā also uses the terminology of "first composition" (Ibn Sīnā, *Nafs*, 58.7), but not in the alchemical or occult sense.

11 Arab. *al-ʿālam al-ṣināʿī*, that is, the "artificial world," the alchemical order. The translation follows Corbin, "Commentaire," 38. As Corbin (58 n19) comments, "we use the corresponding Latin term here to avoid the word 'artificial' [*ṣināʿī*], which in current usage is opposed to 'real,' 'authentic.' Here, what is evoked is the role of alchemy as mesocosm."

12 Verbatim in Ibn Sīnā, *Nafs*, 58.8.

13 Lit. "from this temple" (*min hādhā l-haykal*).

14 See the *maṭlab fī mīzān al-insān*, fols. 46a–47a.

15 Arab. *bi-ḍarb min tafrīq ittiṣāl aw infiṣāl āla*.

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Rather, sensation is limited to the locus of the [single] moment [of sensation]. The moment [of sensation] in a single limb does not apply similarly [to the whole body].[16]

The fact that this faculty [of touch] is present in the entire skin of the body, because it is needed so urgently, is [a sign of] the wisdom of the Creator, may He be praised and exalted. One can only [experience] touch through contact [with bodies] (*bi-l-mumāssa*). What this faculty senses in the [various] parts of the body is conveyed [to the brain] by nerves, as research in the natural sciences has established. However, this sensation does not depend on the nerves [alone], to the exception of the flesh. [Rather, the flesh senses, too.] Were it not so, then the thing that senses (*al-ḥassās*) [i.e., the nerves] would spread out [in the flesh], and in it there would be a further division into branches, like fibers.[17] However, it [the thing that senses] registers sensations occasioned by touching [with the hand] and [skin] contact, and it conveys whatever [information] the sensorium will receive from it. Understand this!

A further note: Know that the closer a human being's mixtures are to equilibrium (*iʿtidāl*), the subtler sensation gets. In the sense of touch, there are specific gradations (*marātib*) and balances (*mīzān*)[18] of perception that determine its contents (*maʿānīhā*). When [certain] effects and reactions occur, its gradations enable the perception of minute stimuli (*tafāṣīl*). Understand this!

[*§ 2.*] *The Second Sense: Taste*

The organ [of taste] in the human being and in the [other] known living beings is the nerve that is spread out over the surface of the tongue. It [the sense of taste] is subsidiary to the sense of touch in terms of the benefits [it provides]. It is similar to it in terms of the need [that living beings have for it]. [fol. 36a] It differs from it in that touching [with the tongue], in itself, does not convey flavor (*ṭuʿm*). Rather, as far as human beings are concerned, the thing that conveys flavor is a clear liquid [i.e., saliva], which in itself is flavorless.

Taste originates from the organ called "saliva's source."[19] It conveys flavors [to the brain] to indicate health, so that it [i.e., what is healthy] may be known

16 Al-Jildakī seems to be saying here that one can feel hot (e.g., on a summer's day) or cold (e.g., on a winter's day), but not at the same time. However, if one puts a hand in the snow, and a foot in a bucket of warm water, one will feel the first to be cold and the second to be hot, but then the "moment of sensation" will be limited to the hand and the foot.

17 Arab. *shayʾan munsharan fīhi tafarruqun mā ka-l-līf*. Cf. Ibn Sīnā, *Nafs*, 61.18–19: *la-kāna l-ḥassās fī jild al-insān wa-laḥmihi shayʾan munsharan ka-l-līf*.

18 The sensory organ has a specific balance of mixtures, as does the body as a whole.

19 With Ibn Sīnā, *Nafs*, 64.8, read *al-mulaʿʿiba*, instead of *al-mukaʿʿaba* ("the quadrangular" [?]), as here and in MS Sprenger 1916, fol. 65b, penult. Cf. Jālīnūs, *Tashrīḥ kabīr*, and

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by means of them. It is different when there is a flavor mixed into them that opposes it [health], as happens in the case of [flavors that provoke] illnesses. As you know, the flavor and touch [in the mouth] form a single stimulus, one that is not differentiated by the sense [of taste]. It simply becomes a flavor, for example, acridity (*ḥarāfa*), which makes one sweat and feel hot and has a certain tactile effect on the palate.[20] It creates a [certain] taste sensation, and no further differentiations are made by the sense of taste. More than what we have mentioned here cannot be said about it. Understand this!

[*§ 3.*] *The Third Sense: Smell*

[This sense] is relatively weak in human beings: a lot of animals possess stronger olfaction. Also, within the human species, it has gradations of [strength in] perception, as we will explain.

Every living being has a specific strength [of olfaction] in the balance of perception. It is like this with human beings, too: the strength of their olfactory sense is relative and subject to a certain balance. People's perception by means of the olfactory sense is different, as is their perception by means of sight, hearing, taste, and touch.

By my life! Inasmuch as the stuff from which people are made (*ṭīnat al-insān*) becomes thicker, the ability of their senses to perceive sensibles decreases. This is because there are thin, opaque veils covering people's essence (*dhāt*) from the moment they are created. However, if the core [fol. 36b] of the human essence is subtle, or when its subtlety increases, all the senses are invigorated and able to perceive more. Many individuals of the human race perceive perfumes over a distance of a mile or more. Perhaps someone with great subtlety smells [the scent of someone] who possesses none of the common smells, as God relates from Jacob, namely, that he said: "Surely, I smell Joseph's scent, unless you think me demented" (Q 12:94).[21] Such sensory abilities, however, are particular to the people of mystical disclosure (*ahl al-kashf*), to the exclusion of other people. Under normal circumstances, however, people achieve a certain [moderate] level and balance, depending on the strength that they have been granted.

Don't you see that those who practice vile professions, such as butchers and tanners, do not perceive stenches? And that likewise, perfumers lose their

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Ibn Sīnā, *Qānūn: wa-tajidu ʿan janbatay hādhā l-ribāṭi afwāha ʿurūqin wa-tusammā sākibata l-luʿābi*, quoted in *WKAS*, s.v. *luʿāb* ("saliva").

20 Ibn Sīnā, *Nafs*, 65.10–13.

21 According to the Qurʾān, Jacob, residing in Syria, smelled the scent of the shirt of his son Joseph, when it was carried out of Egypt in a caravan. See *ISH*, vol. 2, ch. 7 (§ 4.3).

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ability to smell pleasant fragrances, because they sniff them uninterruptedly? The olfactory sense becomes worn if it is exposed incessantly to a lot of pleasant fragrances or bad smells. In fact, the olfactory sense becomes worn more quickly than the other four senses. All the senses experience fatigue. The sense of touch, however, is stronger than the other four, and less likely to become worn. Understand this!

Above, we stated that some animals, or in fact most of them, have better olfaction than the human being, something that God the Exalted has granted them because they need this faculty a lot, in order that they may bring about what benefits them [fol. 37a] and ward off what is detrimental to them. That is, they smell the scent of [what can serve as] food for them and in consequence, they chase it with increased purpose. For example, cats smell the scent of mice and of rats. They also smell the scent of vermin toward which they have an aversion, and either they run away from it or they attack, beat, fight, and kill it.

As for the human olfactory sense, [olfaction] is according to balances, in the way in which we explained. When people increase in purity, this sense is strengthened in them, as are the other senses. The balance of perception depends on whether there is a little or a lot of this. Understand this!

A [further] point: Know that the scent of a thing is spread by the air that passes over it, be it a pleasant scent or not. As a poet[22] said:

> Wine is like the wind: when it passes over something fragrant
> it is pure, but it is foul when it passes over carrion.

The air takes on the quality of the thing that smells and conveys it to the olfactory organ. The locus (*ḥāmil*) of this faculty in the human being is the two protuberances that grow forth from the frontal part of the brain and that resemble the two nipples of the breast,[23] even if fumigation with fire has a share in the perception of smells.[24] Peace.

[*§ 4.*] *The Fourth Sense: Hearing*

This is a sensory faculty in the nerve that spreads out over the surface of the inner ear and that perceives the form (*ṣūra*) of that which is conveyed to it by air waves when air is squeezed between something that hits and something

22 Unidentified.

23 As in Ibn Sīnā, *Qānūn*, 2:7; Ibn Sīnā, *Najāt*, 26.38.

24 See Ibn Sīnā, *Nafs*, 66.7–68.6, on the question of whether smells reside in the medium (air, smoke, etc.) in such a way that the medium becomes itself the smell, or whether the medium merely conveys the smell to the olfactory organ. Al-Jildakī here seems to follow Ibn Sīnā's position, which is closer to the first of the two views.

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opposite that is hit by it, and when this act of squeezing happens with force so that a sound (*ṣawt*) or a phoneme (*ḥarf*) is produced by it. The sound is conveyed in waves to the motionless air that is enclosed in the hollow part of the inner ear, making it move [fol. 37b] with the shape (*shakl*) of its movement. The waves of this movement touch the nerve that we mentioned before.

What we described earlier in this book anticipated [what we say here about] the perception of sounds and phonemes. That is, if the essence (*dhāt*) of people is purified, their hearing is strengthened and increases to the degree that they hear sounds from a [great] distance and perceive many meanings in the whisperings of the air, even in a ripple of water or in the tinkling of pots and pans. They may even hear the voices of spiritual beings (*aṣwāt al-arwāḥ al-rūḥāniyya*) and understand the language of the birds that sing in the trees. Likewise, they understand the language of all the other animals. Understand this, people! We have demonstrated this [elsewhere] in *The Proof on the Secrets of the Science of Balances* and in the chapter on special properties (*khawāṣṣ*) in *The Treasure of Special Attribution*.[25] Peace!

[*§ 5.*] *The Fifth Sense: Vision*

This is a faculty that perceives light and color and that is located in the hollow nerve by which it connects to the eye. [This happens] when the form (*ṣūra*) of the perceived visible object is impressed in the eye's crystalline humor, which resembles a mirror in terms of being cold and solid.[26] If a colored and illuminated object is placed opposite it, a likeness of its form is imprinted in it, just like the form of the human being is imprinted in a mirror. [This happens] not in the sense that something is detached from the colored object and extended into the eye. Rather, the likeness of its form occurs in the mirror, or in the eye of the beholder. It [the visible object] must be in a particular oppositional position [to the eye], and the medium [of vision] must be clear and transparent, so that vision can take place.

[fol. 38a] Regarding [the notion that vision occurs] in a continuous way that leaves no empty space [between the eye and the seen object],[27] [note that]

25 The full title of this work is *Kanz al-ikhtiṣāṣ wa-durrat al-ghawwāṣ fī asrār al-khawāṣṣ* (*The Treasure of Special Attribution, and the Pearl of the Pearl-Diver, on the Secrets of* [*Occult*] *Properties*). This work was lithographed in Bombay, by Mīrzā Muḥammad Shīrāzī, in 1891. See Holmyard, 48–9.

26 This account matches that of Ibn Sīna closely. See Lindberg, 49.

27 Arab. *wa-ammā bi-tawassuṭ ittifāqī li-ʿadam al-khalā*. Some ancient scholars of optics argued that the visual flux emanating from the eye forms a continuous body connecting the eye to the seen object, an idea rejected by Ibn Sīnā. See Ibn Sīnā, *Najāt*, 28–9; Lindberg, 51.

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the image of a big object is not imprinted [in the eye] in its [actual] size but rather, in a small size, which requires the thing to be *perceived*[28] according to its [actual] size. Without doubt, a seen object is small in terms of the size that meets the eye in the mirror, while the seen object is [in reality] big, and while vision *perceives* it to be big despite its small size in the mirror or in the eye. This is difficult to understand. Try to inform yourself about it and may you be guided, God the Exalted willing.

The visual sense perceives all things in relation to how its faculties are balanced. It is composed in such a way that it requires the *perception* of the distance between the observer and the seen object. Also, it captures the images that are on the surfaces [of bodies] in a way that the observer *perceives* in them the dimensions of these bodies, the distance between them, and their position vis-à-vis the horizon. Likewise, when brilliant colors are [placed] opposite walls, they [the walls] reflect their light and are illuminated, by the permission of God the Exalted, with reflected colors such as red, yellow, blue, and so on.

Rays are emitted from the eye in a conical shape. Lighthouse engineering (*ʿilm al-manār*) is based on this, as those who study it know well. Among its achievements is the lighthouse in the port of Alexandria, together with the mirrors on its top, which is constructed in such a way that one can observe from there islands in the [Mediterranean] Sea both close and far away, the vessels and ships that set out from them, as well as how many miles their distance is from Alexandria. Among the achievements of the science of optics (*ʿilm al-manāẓir*) are burning mirrors (*al-marāyā l-muḥarriqa*).[29] [fol. 38b] We discussed this science in *The Treasure of Special Attribution* in a comprehensive and detailed way. Know this!

Know that in many animals (lions, cats, and vipers, for example), the sense of sight is stronger than in many human beings. Their eyes shine and burn with a fire night and day.

A lot can be said about the visual sense.[30] This is the task of the scholars of optics.

28 Perception (*idrāk*), here, is more than just the imprint of an image in the eye. To be complete, visual perception requires judgment (*tamyīz*), comparison (*qiyās*), and inference (*istidlāl*), all of which happen in the brain/soul. See Sabra, 2:78–81. The italics in the translation seek to convey this more specific meaning of *idrāk*.

29 Presumably, al-Jildakī is referring to burning glasses here, that is, convex lenses that concentrate the sun's rays onto a small area, for ignition purposes.

30 Al-Jildakī may be referring here to the long passages that Ibn Sīnā devotes to vision in his *K. al-Nafs* (77–141), in contrast to the relatively short chapters he devotes to the other four senses (58–67).

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Vision is different according to the inner light that rises from the heart to the visual organ and from there is aimed at the seen objects, like the rays cast by the stars. Visual perception is different according to whether the eyes are directed straight ahead or upward. The Messenger, God bless him, used to see twelve stars in the Pleiades, while most people with sound vision see about six. Many people fail to spot Alcor (*al-Suhā*) among the seven stars of the Great Bear (*al-Dubb al-Akbar*), also called Daughters of [the] Bier (*Banāt Naʿsh*). There are people with such strong eyesight that they see the moon or the sun as a great mountain; others see the moon as a big [flat] disk; again others see it as a loaf of bread, or even less than that. Some people's eyesight is so strong that they see the face of the moon as it really is, in the same way in which they see a person's face: with eyes, eyebrows, nose, mouth, lips, and cheeks. It is like this with all the other illuminated stars, for they all look like human faces. Most eyes, however, [fol. 39a] do not [even] perceive the true face of the sun.

Some people see things from a far distance, for example, the Blue-Eyed Woman from al-Yamāma (*Zarqāʾ al-Yamāma*),[31] who used to see things that were at a distance of three days of travel. There is no doubt that the people of devotion and purity (*ahl al-walāʾ wa-l-ṣafāʾ*) among the servants of God perceive, with their outer as well as with their inner eyes (*bi-abṣārihim wa-bi-baṣāʾirihim*), things that others do not perceive. They see spiritual beings and angels, blessings be upon them. In *The Treasure of Special Attribution*, we have discussed the things that are related to this. Understand this!

Know that the balances of the five senses have to be taken into account in [the study of] the balances of the liquifiable bodies and other medicines that are employed in the *mundus artificiosus*, for example, the touch, taste, smell, temperature, tinkling, and color [of a thing]. All this will be explained to you in its proper place, later in this book,[32] God the Exalted willing.

31 A semi-legendary figure of Arabic lore. See Shahid.

32 See the *maṭlab fī khawāṣṣ al-ṭuʿūm wa-l-alwān wa-l-nuʿūma wa-l-khushūna*, fols. 134a–134b.

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