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Prolegomena

[The poet] must be well versed in many sciences and quick to pick up information from his environment; because, as much as poetry is of advantage in every science, so is every science of advantage in poetry.

در انواع علوم متنوع باشد و در اطراف رسوم مستطرف زیرا که چنانکه شعر در علمی بکار همی شود هر علمی در شعر بکار همی شود

You should know that a poet needs most of the sciences and *adab* in order to reach excellence in poetry; for this reason he must be educated and know something about every subject, so that, whenever he must express a concept which is not part of his art, he does not feel any difficulty in doing so and does not say anything that would allow [anyone] to guess that he does not understand what he is saying.

و بیايد دانست کی شاعر در جودت شعر خویش بیشتر علوم و آداب محتاج باشد و (بدین جهت) [باید] کی مستطرف بوذ و از هر باب چیز کی داند تا اگر بآیراد معنی کی فن او نباشد محتاج شود آوردن آن بر وی دشوار نشود و چیزی نکویذ کی مردم استدلال کنند بدان کی او آن معنی ندانسته است چنانک معزی گفته (است)¹

Poetry and science

Passages such as the above oft-quoted pieces of advice are really the starting points of the present study. Can one find traces of scientific knowledge in the works of the medieval Persian poets? We do not possess, as far as I am aware, medieval Persian works explaining famous verses from a scientific angle. Nor is there any medieval source presenting scientific résumés specifically aimed at Persian poets who could put these to use in their poetry.² Nor do we find precise information in poets' biographies or in studies on

¹ Nizami 'Aruzi (6th/12th century), *Chahar Maqala*, 34 and Shams-i Qays (7th/13th century), *al-Mu'jam*, 477.

² J.E. Bencheikh, *Poétique arabe*, 59–66, mentions such works for medieval Arabic poets. It is possible, of course, that these works in Arabic were also used by poets writing in Persian.

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learning in medieval Islam, on the actual acquisition of scientific knowledge by poets. Nevertheless, numerous contemporary voices mention the “scientific knowledge” of medieval poets.

Our investigation must start with the finished product – the poetic verses – and work backwards to gauge the knowledge necessary to write these. It is obvious in many instances that science and poetry have influenced one another. They are sometimes coupled or contrasted, as in the preamble to the *Urjuza fi 'l-tibb*, a résumé of received medical knowledge, where Ibn Sina (Avicenna) (d. 428/1037) puts medicine and poetry in parallel with each other: “The poets are the princes of the verb, the doctors rule over the body. The eloquence of the former rejoices the soul, the devotion of the latter cures the sick.”³ Furthermore, this work, as is the case for several other scientific treatises, is composed in verse form. Such compositions are called *nazm* and are really versifications of little poetical value, rather mechanical, mostly with a mnemo-technical aim. That scientists were certainly appreciative of poetry is also indicated by the abundance of quotations in scientific works. Biruni (d. 443/1051) for example, peppers his accounts of plants in the *Kitab al-Saidana* with numerous poetical citations.

But the other side of the coin of the reciprocal influence of science and poetry has up to now drawn little attention and will be tackled here: how far can science’s influence be traced on medieval Persian poetry? The idea that there has been an interaction is far from new. One might even say that it has become a cliché, mentioned repeatedly in studies on medieval Persian or Arabic poetry. History has kept the memory of poets who were also scholars, such as Anvari (d. 581/1189–90), who studied sciences. Apparently egged on by a healthy desire for more substantial earnings, he decided to change his occupation, as he had realised that a successful poet could earn more money and approach the highest levels of society more easily than any scholar could ever hope to do. He possessed the necessary knowledge to enrich conventional images with scientific allusions.⁴ Sana’i (d. c. 526/1131), one generation older than Nizami, was also a *poeta doctus*. His biography lacks precise information about his education, but his knowledge of philosophy and the natural sciences is reflected in his verses.⁵ Khaqani (d. 595/1199), a contemporary of Nizami, is yet another scholar-poet. He informs us that he

³ Avicenna, *Urjuza fi 'l-tibb. Cantica Avicennae*, Preface, 13 and 14.

⁴ J.T.P. de Bruijn, “Court Poetry”, *Elr*, IV, 387.

⁵ J.T.P. de Bruijn, *Of Piety*, 38.

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received a medical training from his uncle who was a doctor. This uncle put into his hands the Arabic works, the classical lexicographical and philological treatises, which every poet was supposed to be familiar with.⁶

The somewhat jarring idea that poets searched in the scientific spheres for vocabulary and concepts to adorn their works must be understood in the light of the nature of poetry itself in medieval Persia. It is important to realise how severely clipped a poet's wings were and how close to an actual scientific occupation poetical creation had become. Even today, "a poem is an instance of verbal art, a text set in verse, bound speech ..."⁷ Two further criteria also seem important in a definition of poetry: firstly, the formal criterion, that poetry is rhythmical and rhymed speech, and secondly, the psychological criterion, that poetry is a discourse which excites the imagination. The first of these two criteria, which was considered fundamental in medieval criticism, shows that Arabic and Persian poetry is a science or at the very least a craft, as it implies a reasoned knowledge and application of established laws. The second highlights that poetry is also an art.

Poetry – a hard-earned craft

"Whenever you should meet a talented man, whose poems bejewel the ears of the universe, [know that] his most inspired poems have been tossed up from a sea of blood. For him this year will be darker than the last, tomorrow worse than today. Unhappy he who toils in the arts! Woe for this wretch! Truly, woe for him!"⁸

هر کجا بینی هنرمندی که هست	گوش گردون پر گهرزانشای او
از میان موج خون آید برون	نکته های نغز جان افزای او
تیره تر از پار مر امسال وی	بدتر از امروز مر فردای او
وای آن کو در هنر سعی برد	وای آن مسکین، حقیقت وای او

Medieval Persian poetry has been the object of numerous studies both in its homeland and abroad. Most poets have been analysed, their poems have been edited and published, translated and critically studied. However, the bulk of the scholarly attention has focused on

⁶ A.L.F.A. Beelaert, *A Cure for the Grieving*, 3–4.

⁷ A. Preminger and T.V.F. Brogan, eds., *The New Princeton Encyclopedia of Poetry and Poetics*, 938.

⁸ Jamal Isfahani (6th/12th century), *Divan-i Kamil*, 314–16, ll. 15–18 (*bengarid in charkh*).

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the psychology of the authors, of the characters, and on the plots ... and for a long time what I term here the actual poetical “building material” remained neglected. Medieval critics, for their part, do stress the importance of the technical aspect of Persian poems. The production of a medieval poetical work of art required immense background work and knowledge. Granted, poetical genius depended on an artistic gift. This latter was, however, more than enhanced, it was actually given form, by the poet’s skills and poetical craftsmanship. The public would promptly savage any piece whose form was found wanting. A formal *valeat* was needed before the artistic genius of a poem could be enjoyed.

Poetical technique can be broken down into poetics – prosody – the quasi-mathematical rules, the *calculations* for the construction of a given verse, on the one hand. On the other, it also depends on the use of vocabulary and images, the *bricks* forming the poetical building. This study looks at the latter and more precisely at a particular aspect of vocabulary and images: those loaned from the scientific sphere. The acquisition of a rich vocabulary, of variety, of precision, synonymy and polysemy – all of which medieval poets seemed to juggle with effortlessly – was necessarily backed by long hours of serious study. Nizami ‘Aruzi encourages aspiring poets to memorize hundreds of verses before trying their own hand at composing.⁹

The beginnings of medieval Persian poetry coincide with the emergence of a written Persian language, deeply dependent on the impact of Arabic and of Islam on the Iranian world. Although the pre-Islamic Arabic consciousness had been heavily imprinted by pre-Islamic poetry, the Prophet of Islam condemned poets and the almost supernatural ascendancy they wielded over their audience.¹⁰ Bencheikh argues that, in order for poetry to survive within the Islamic world, people had to be convinced of its use for medieval Islamic society. Indeed, poetry was mentioned in the classification of sciences, holding an important place there amongst the sciences derived from the Qur’an. The function of poetry was prominent: the study of the examples it provided contributed to the establishment of a unified Arabic language. Rather than an artistic expression, depending on taste, it was considered a science presenting objective grounds for intellectual appreciation or criticism.¹¹

⁹ Nizami ‘Aruzi, *Chahar Maqala*, ed. 34.

¹⁰ D. Urvoy, *Les Penseurs libres dans l’Islam classique*, 163–5.

¹¹ J.E. Bencheikh, *Poétique arabe*, iv.

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The criteria set for the appreciation of Persian poetry seem, at the time we are dealing with, the twelfth century AD, to be similar to those that were set for poetry written in Arabic. Some treatises on poetics, such as Rashid al-Din Vatvat's (d. 578/1182–3) *Hada'iq al-Sihr*, are bilingual, using a unified terminology for both language systems. However, it is wrong to conclude that the Persian prosodic system is identical to the Arabic one, as the technical terms in the two languages do not always mean the same things.¹²

The aspirant poet had thus to become a craftsman and could not rest satisfied with only his artistic gift. Knowledge, experience and exercise were indispensable before a gifted individual could be called a real poet. The process of creating a masterpiece was slow, arduous and delicate: excessive polishing was denounced too, as this tended to produce perfection devoid of spontaneity. The real poet had to find the middle way, harmony between spontaneity and toil.

Patronage represented another influence on the poetical output in the period concerned. Poetry – and this was particularly the case with the longer epic forms like Nizami's *masnavis* – had a moral, instructive aim. But poetry was also used as a means of publicity. The lasting reputation and the name of the patron and his dynasty depended on the success of the poems dedicated to him. Nizami 'Aruzi mentions the four necessary auxiliaries to the ruler: the secretary, the poet, the astronomer and the doctor.¹³ But the game was not fair, the chances not equal. Though the ruler might want the help of a poet to establish his fame, he could naturally do without. The reverse was not true for most of the poets. They needed the help and the money of a patron, and the scramble to obtain these was bitter. Pressure was incredible: not only did a poet need to master the technical aspects, but he also had to outshine all other candidates and his output had to charm, and be in harmony with the patron's agenda.

A successful poem in medieval Persia was meant to be read over and over again, to be taken apart, to be discussed in its most minute details by what one imagines to have been an exacting court audience. Every new study of the poem would produce exciting new discoveries both about its content and about its style. Persian literary criticism traditionally concentrates on questions of prosody and gives little information on the vocabulary and choice of images.

¹² L.P. Elwell-Sutton, *The Persian Metres*, viii; G. Lazard, "Les Origines de la poésie persane", 310–11.

¹³ Nizami 'Aruzi, *Chahar Maqala*, 13.

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There was a restricted number of themes to choose from, such as the panegyric or the description of Iranian festivals, or of the seasons. These themes are expounded in certain forms and decorated with a limited quantity of images, as Shams-i Qais for example sets out in his book.¹⁴ But the poet's creative freedom was really curtailed by the lexical works and anthologies. He was but a link in the chain started by his predecessors. He had to study the examples they provided, which seemed to have exhausted the possibilities of thought, vocabulary, images and craftsmanship. He borrowed accordingly, on the level of the story and the characters in these stories, as well as on the level of the images and the vocabulary. But he also had to avoid outright plagiarism by somehow refining a given expression, which the public would enjoy tracing back to its origin while appreciating the additional and subtle refinement. This constant refinement of given images had reached such extremes by the nineteenth century that Ghalib (1797-1869) exclaimed, "What is poetry then? I will tell you: it is drawing the blood from the veins of the words!"¹⁵

We can deduce from all this that the first question put to a poem was not why is it beautiful and artistic? but rather why is it incorrect? A lexical error indicated insufficient mastery of the meaning and the cultural references which form the environment of a given word. The demands of the learned audience were incredibly detailed, as attested by the ferocious criticisms which rained down on Anvari when he used the term *musta* in reference to vultures. The critics stated that *musta* was a bait or food for hunting birds, a category to which vultures do not belong.¹⁶ Consequently, the poets were aware of the importance and refinement of the thesaurus: some actually composed dictionaries and lexicographical treatises. This also probably explains why *tazkiras*, the so-called poets' biographies, usually contain few life details and are in fact collections of the authors' best verses.

Nevertheless, the lexicographical treatises, though certainly a source of inspiration for the poets, cannot alone explain the extent of the knowledge they show. It is particularly frustrating that there is no detailed explanation about their instruction during the medieval period. Theirs was probably a similar curriculum to that of the average student in the medieval Islamic world. Knowledge was divided into three parts: Islamic sciences, the sciences of the

¹⁴ Shams-i Qais, *al-Mu'jam*, 431.

¹⁵ Ghalib, cited without reference in A.M. Schimmel, *Stern und Blume*, 29.

¹⁶ Shams-i Qais, *al-Mu'jam*, 477–8.

Ancients, i.e. non-Islamic sciences and especially Greek sciences, and, finally, the Arabic sciences or literary arts. The sciences of the Ancients were not part of the *madrassa* curriculum. Medicine, for example, was taught in the hospitals. Other branches of ancient knowledge, more or less tarred with official disapproval, were taught in private, sometimes in a very discreet manner indeed.

A report by a young fifteenth-century Herat poet¹⁷ brings to light three sources for the poet's instruction: (a) poetical works and the perusal of critiques of Arabic poetry which were consciously applied to Persian poetry; (b) private tuition by a master; and (c) participation in literary *majlisses* during which veritable oratorical contests might be staged. It is interesting to note here that the feats some poets are reported to have accomplished by improvising unforgettable poems on the spur of the moment, were in fact often the result of well-planned *mises en scène* faking the effect of surprise.¹⁸

The poetic output of the earlier periods of Persian poetry is powerful and uncomplicated, as can be seen in Firdusi's (d. 416/1025–6) *Shah Nama*, for example. By the twelfth century, the style had become more refined, new images had been introduced, bringing new blood to the old thesaurus of dead metaphors inherited from the previous generations. These older metaphors had become so conventional, so stock-in-trade, so clichéd, that they contained no information any longer, and their original meaning might even be lost. A case in point in the present study is the use made by Nizami of the term *sarv*, the cypress tree (see below, p. 58).

Nizami

The choice to analyse Nizami's verses for their scientific content and correctness is a straightforward one. This particular poet is the product of a period when Arabic science was in full bloom and when it was fashionable to incorporate fresh scientific allusions into poetry. The great age of Arabic science started with the epoch-making translation movement of Greek Hellenistic works in 'Abbasid Baghdad during the first half of the ninth century AD. (The adjective "Arabic" when applied to scholars and to the scientific output of the lands under Islamic rule is open to misinterpretation. To my understanding, however, it still remains the best possible designation. It indicates that these scholars chose mainly to express

¹⁷ M.E. Subtelny, "The Literary Life of Timurid Herat", *passim*.

¹⁸ J.E. Bencheikh, *Poétique arabe*, 68–80.

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themselves in Arabic, though some of these authors would write in several languages. The adjective “Arabic” refers neither to their race, as some of the most important scholars were Persians, Jews or Latins, nor to their religious beliefs.) During the tenth and the eleventh centuries, this corpus of works was assimilated and produced a first scientific efflorescence. Arabic science would continue to flourish until the thirteenth-century Mongol invasion put a brutal stop to this phase of the cultural history of the eastern Islamic world. Before that, in the twelfth century, the central Saljuq regime seemed unable to contain the centrifugal forces ripping apart the empire. The eastern Ghaznavids had already organised a brilliant court where poetry flourished. In the west, the Turkish Atabegs, increasingly independent, vied to create cultural centres to which artists were attracted as bees to honey. The “Persian poetic school of Azerbaijan”, appearing in the twelfth century, seems to be the product of this situation: decentralisation and artistic competition against a background of fascinated interest in science. As briefly mentioned above, the great figures of Persian poetry in this period are famous for their scientific erudition. Their verses are nests of allusions to the sciences, peppered with precise scientific vocabulary and difficult images. Nizami is one of the main representatives of Persian poetry at the time. Like others, he has the reputation of being very knowledgeable in the sciences. This reputation for knowing something about “all the sciences of the time” was not limited to poets but also applied to scholars, who were usually presented as polymaths.

Many authors have detailed what is known of Nizami’s life and work. Interested readers should refer to the existing literature on the poet and his *masnavis*. What follows is simply an attempt to extract from what is known, elements which are relevant to my present purpose. In sharp contrast to Nizami’s foremost place in the history of Persian poetry, his biography is pieced together from the few reliable facts that we have. This is not particular to Nizami but is rather the fate of most medieval Persian poets. Amongst the so-called biographies of poets, ‘Aufi’s thirteenth-century *Lubab al-albab*, the Persian *tazkira* which is the closest to Nizami’s lifetime, is frustrating in its brevity. Its comments on the poet are hardly relevant. Daulatshah, the fifteenth-century author of the *Tazkirat al-shu‘ara*, is more generous, but the period is already much removed in time and the author is not very reliable. Another source of information is the poet himself and the few autobiographical remarks he scatters in his major work, the *Khamsa*.

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The generally accepted outline is as follows: Jamal al-Din Abu Muhammad Ilyas b. Yusuf b. Zaki b. Mu‘ayyad Nizami is called “Ganjavi” in reference to his place of birth and apparently of residence throughout his life. Nizami is his “nom de plume”. He most likely was born around 535/1141 or 540/1146 in an urban Azerbaijan milieu. He might have been of Jewish background, or maybe Turkish. Nizami mentions his parents and lost friends in the introduction to his third *masnavi* (LM10). He had a son, whom he addresses and mentions in several passages. Nizami also mentions his age in *Laili va Majnun*, where he says that he has reached seven times seven years. However, we should be aware that this might be a symbolic rather than a precise indication. The poet probably married three times. In the *Iqbal Nama*, he presents the death of each of his wives as coinciding each time with the writing of a new *masnavi* (IN11,86–8).

His life is traditionally described as being spent far from court and its temptations. This should be taken with caution: Nizami dedicated all his *masnavis* to important personages, and the content of his works is composed in the *Mirrors for Princes* perspective. Furthermore, he probably dwelt at some court in order to meet scholars and other poets, and possibly to consult libraries and glean all the knowledge which allowed him to write as he did. As Daulatshah proposes, it was probably at a later stage in life that Nizami became a recluse. It should be noted also that Daulatshah does not specifically mention Nizami’s wide range of knowledge, while ‘Aufi does say that “Nizami of Ganja made manifest a whole thesaurus of knowledge”. LM contains an indication that he might have had other interests in addition to merely writing poetry: “These 4000 *bayts*, so numerous, have been composed in less than four months. If other occupations had been banished, they would have been finished in fourteen nights.”

شد گفته به چار ماه کمتر	این چار هزار بیت اکثر	LM4,90
در چارده شب تمام بودی	گر شغل دگر حرام بودی	LM4,91

Following the not always trustworthy indications of Daulatshah, it is usually accepted that Nizami belonged to the *shu‘ubiyya* milieu, or that he was close to or even an adept of an ‘*Akhis*’ brotherhood, the members of which were recruited amongst the relatively humble urban population such as artisans. These ‘*Akhis*’ seem to have been submitted to an initiation and used mystical

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concepts of colour, form and numbers. The date of his death is uncertain and has a thirty-seven year variation: from 575/1180 to 613/1217. A possibly genuine gravestone was discovered in Ganja with the date of 4 Ramadan 605/12 March 1209.

In any case, there is a lack of information on the poet's education and also an intriguing contrast between the public to whom he addressed his *masnavis* and his reputation for being a hermit, detached from princely patronage. The present study will yield some much-needed information found in the poet's verses themselves, illuminating Nizami's education and that of his public.

Nizami's renown rests on his five *masnavis* or epic poems, which form the *Khamsa* (also called the *Quintet*, the *Panj Ganj*, the *Five Treasures*). Though it is not used in the present study, Nizami may also have composed a *divan* of about 20,000 verses, as signalled by both 'Aufi and Daulatshah. This *divan*, which is a suspected forgery, although Nizami mentions it in LM4,1–2, has come down to us in three heavily truncated manuscripts and awaits further study.

The *masnavi* is a Persian poetical form where the *baits*, or verses, are composed of two rhyming *misra*'s or hemistichs. The rhyme changes at every verse line. This supple form allows long compositions, such as the 50,000 verses of Firdusi's *Shah Nama*, for example. Apart from the *Makhzan al-Asrar*, which is a didactic work, Nizami's *masnavis* are better described as romances or romantic epics. The poet's careful attention has gone to the word, the description, the poetic imagery, in order to portray the characters and the situations. Virtuosity in the shaping of images has reached its zenith in their refinement and their essential importance within the stories.

The five *masnavis* are usually assembled in the *Khamsa* in the following order (which is often, but not always, accepted as the poems' order of composition and which is mentioned by Nizami himself in SN11,36–42 and IN11,86–8):¹⁹ the *Makhzan al-Asrar* (MA), *Khusrau u Shirin* (KH), *Laili u Majnun* (LM), *Haft Paikar* (HP) and *Iskandar Nama*. The latter has two parts: the *Sharaf Nama* (SN) and the *Iqbal Nama* (IN). Though they are traditionally considered as one entity, I have approached them as two separate works, as I felt that a different spirit ruled over their composition. Thus, our analysis contains six *masnavis*.

¹⁹ This order has been questioned, see F. de Blois, "Eskandar-nama", *Elr.*, VIII, 613.