Theology and Science: The Case of Abū Isḥāq an-Naẓẓām

There is some reason for doubting whether scholars who lived before the Renaissance really knew the principle of experimentation. But many of them – and especially in the Muslim civilization of the Middle Ages – tried to base their knowledge on experience, and we should perhaps not forget that at least one language of the modern Western world, namely French, does not make a distinction between experience and experiment: expérience means both.¹ This experience could sometimes be crushed by the weight of an overwhelming axiomatic system; this is the reason why, for instance, Ibn an-Nafīs’ discovery of circulation in the lungs was never given the credit it deserved.² But experience could also go together with that kind of spontaneous curiosity which penetrates into unknown secrets of nature.

Al-Ǧāḥiẓ, the famous litterateur of the ninth century, tells us a nice example. It deals with the domain of zoology, with the physiology of the ostrich. Ostriches have sturdy stomachs. The Arabs had always known that, at least when they came from the desert, let’s say from one of those regions to which we owe this afternoon’s entertainment. But the town-dwellers next door, at Baṣra where the entire trade of the Gulf area, from Mesopotamia up to India and even China, was flowing together, were as skeptical as we are. They did not believe what they had not seen themselves, and ostriches were not normal domestic animals in the bourgeois quarters. So somebody amused himself by making a member of this species swallow coal which he had heated in a fire. He was in good company, and his friends gave him advice how to go on with his test. There was especially one among them who possessed the kind of imagination sadistic enough to make the experiment a success; he serves, at the same time, as


² Cf. now M. Ullmann, Islamic Medicine, Edinburgh 1978, p. 68 f.
our witness for the story. He asked him to replace the live coal by hot stones which preserve the heat better and might therefore be more difficult to digest. And since, to his great surprise, these stones were all consumed by the ostrich without any sign of inner disorder, he urged his friend to go on with pieces of hot iron. How else could one find out whether the animal did not only store these things in his stomach, but also dissolved them by its acidity? He wanted to wait a few days and then discover the truth by dissection. But unfortunately his intention was spoiled by his colleagues. One of them threw a knife, which he had heated before, to the ostrich and the compliant bird swallowed even this. This excess of greediness, however, was not to be survived. The knife never got to the stomach; it cut through the animal’s throat. “Thus, through (our friend’s) stupidity,” the report says in the end, “we were prevented from penetrating into the subject as deeply as we wanted.”

The man who speaks this way and who was more or less responsible for the systematization of the experiment is a theologian by the name of Abū Ishāq an-Naẓẓām. The Islamicists are familiar with him: he was a Mu’tazilite, member of a group of thinkers of a “school” characterized by a distinctly rationalist outlook which dominated the intellectual scenery of his time, i.e. the end of the second and beginning of the third century H. (Islamic calendar) or the first decades of the ninth century of our era. The Abbasid caliphate had passed the apogee of its political power; in the East, in Iran, as well as in the West, in the Maghrib, the first provinces had succeeded in gaining a relatively uncontested independence. But the signs of decline were still unrecognized; they had disappeared under an unprecedented flourishing of civilizational luxury and cultural splendor. Aristotle, Plato, and Galen were translated into Arabic, together with many other Hellenistic thinkers whose names are nowadays as unknown to us as that of an-Naẓẓām. Not more than roughly half a century before, the Arabs had learned from the Chinese how to fabricate paper from linen, flax, or hemp rags, and the new technique had quickly found its way from Central Asia, the region around Samarkand where the first papermills had been erected, to Iraq. This meant that bookwriting no longer depended on the availability of parchment or papyrus; the dissemination of ideas had become cheaper and was no longer bound to the generosity of a sponsor or the sovereign. To a much greater extent than before, theologians, like all other scholars, started writing down their doctrines; they no longer only expounded them in discussion.

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3 Cf. Ġāḥīṣ, K. al-Ḥayawān, ed. Abdassalām Muḥammad Hārūn, Cairo 1356/1937, iv 320, 7 ff. The story has already been drawn to light by R. Paret in his article an-Naẓẓām als Experimentator, in: Der Islam 25/1939/228 ff.