in all probability, vaso-dilators in the eye. Bayliss has demonstrated their presence in the ophthalmic branch of the trigeminal nerve. It is also possible that calcium chloride (which according to Overton and Locke acts on the synapses of some nerves) by either paralysing the constrictors or stimulating the dilators causes an increased circulation in the eye, while the specific action of calcium chloride which causes constriction and lessens the permeability of the vessel walls is temporarily masked.

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AN ARABIC BRONZE NEEDLE FROM ANTIQUITY
FOR DEPRESSION OF CATARACT

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Among some antique surgical bronze instruments collected from the ruins of Palmyra by the late Russian Baron Ustinov (1872-1890) and now in my possession[6 and 3] there is one to which some interest for the history of ophthalmology is attached; it was exhibited at the Eleventh Annual Meeting of the Oxford Ophthalmological Congress, 1920. Baron Ustinov has never published anything about his finds.

In Fig. 1 the instrument is seen in natural size. Though the sharp end was broken off in antiquity and not found I have good reasons to believe that the instrument is an Arabic cataract couching needle from the centuries immediately after the Mohammedan conquest of Palmyra; in a spatula found from the same source a Palmyrene man’s name 'Αδηνακαβος is stamped Ati’akab in basso-relievo with Arabic letters[3 and 6].

I have the following facts to support my opinion:

1) The diameter of the square handle, 4 mm., is about the same as in the ophthalmic instruments of the present day; I do not, however, lay great stress upon this point.
(2) The proportion between handle and shaft (Fig. 1) corresponds with some Arabian diagram pictures (Fig. 2) of needles for couching cataract from Abülqāsim's textbook of surgery (eleventh century); in spite of the prohibition of the Koran against images, the work is illustrated in the oldest manuscripts, perhaps by Christian copyists who have seen the Arabian instruments.

In the Latin translations of Abülqāsim (younger manuscripts and incunabel prints) the illustrations become more and more fantastic, while they are arbitrarily simplified in Leclerc's French translation\(^1\), whose drawings were lent by Gurlt\(^2\).

From Fig. 1 will be seen the great resemblance between our instrument and the lowest picture in Fig. 2 from the Arabian MS. in Oxford. This fact makes me agree with Professor Hirschberg\(^3\) that the sawtoothed outlines of the latter are only an unsuccessful drawing of the decoration of the handle. The same is the case with the reproduction of the stem of the instruments in the two lower pictures in Fig. 2 as a thin line; even made of steel they would have been too slender. Made of bronze the stem ought, like ours, to be 2 mm. The ancient authors say expressly that the cataract couching needle (always bronze) must be strong; for this reason the puncture with the cataract needle itself through the membranes of the eye was often difficult, and, therefore, performed by the Arabs with a scalpel point as the Mohammedan cataract couchers still do in India to-day (R. H. Elliot\(^4\)).
(3) One end of the handle is provided with a knob of 2 mm. diameter, and seems likely to be made for a preparatory act in the depression such as is described by Antyllos, by Paullos Aiginetes and by many Arabian surgeons. Local anaesthetics were not known, the operation was painful; the eye made an escaping movement upwards so that the surgeon risked making a wrong puncture. In order to prevent this accident, both Greek and Arabian authors advised the operator first to make with the knob of the handle a dent in the surface of the eye where the puncture was to be made; then an incision with the scalpel point, and finally, the introduction of the couching needle. According to Hirschberg, Salah Ad-Din advised first to dip the knob into an antimonial paint by which the dent became a black spot.

According to Sudhoff similar end knobs as those seen in Figs. 1 and 2 may be found as decorations on pictures of Arabian tooth instruments in the Latin incunabel editions; but none of those drawn in his work have "sawtoothed" outlines, and in the only one which could be considered (Bibl. 7, Fig. 32) only the handle is of bronze in which a steel instrument is placed. Our instrument, like all ancient cataract couching needles, is wholly of bronze.

Arabic surgical instruments do not seem to be found in European museums. At any rate no special journal of the history of medicine contains anything about this; and illustrated accounts of medical history contain only diagrams from the above-mentioned mediaeval manuscripts. It is possible that the very durable old bronze instruments are handed down to the next generations and are used to this very day. At any rate medical textbooks from the middle ages (in printed copies) are still in use by such Arabian physicians as have not acquired modern medical education from the French in Algiers and Beirut or from the English in Cairo.

LITERATURE