that 'they were of the most superior kind and temper' has a rather amusing sound. It is well known to scientists that meteoric iron quite refuses to yield to successful forging—its grain being too 'short' for a durable cutting edge. The excellency of the weapons returned to the Sultan confirms the suspicion that his messenger pocketed the proceeds of the sale, yet had the grace to visit Sheffield for the swords and simitars. The two masses of Nejed were identical in composition, as they were closely similar in size, weight and general external appearance. When a polished section of this iron is etched with acid or with bromide-water its surface displays excellently the Widmanstätten figures, the straight long beams of Kamacite forming the approximately equilateral triangle pattern according with the octahedral crystallization of the mass.

Mr. Fletcher has analyzed the iron, and has shown its near similarity in composition to the iron of Trenton (Wisconsin), Toluca (Mexico) and Verchne Udinsk (Siberia). The relation of the four irons is as follows:

	Nejed.	Trenton.	Toluca.	V.Udinsk
Iron	91.04	91.03	90.74	91.05
Nickel	7.40	7.20	7.78	8.52
Cobalt	0.66	0.53	0.72	
Copper	trace	trace	0.03	
Phosphorus	0.10	0.14	0.24	trace
Sulphur	trace		0.03	trace
Insol. Residue	0.59	0.45	0.34	0.58
	99.79	99.35	99.88	100.15

This close similarity of composition in masses fallen in widely separated parts of our earth, at different dates, and coming perhaps from heavenly bodies infinitely distant from each other in space, is one of the many wonders revealed by these cosmic messengers. Lockyer has also shown that the spectra of the two meteorites, Nejed and Obernkirchen, closely agree as to both the number and the intensity of the lines. The specific gravity of the Nejed was determined by Fletcher at 7.863. Cohen and Brezina both speak of its very slight *veränderungszone*. This surface decomposition being less than 1 mm. in thickness, together with the general sharpness and brightness of the iron, lends probability to the story of the Arabian that Nejed was seen to fall. Indeed Fletcher says of it in his earliest description, "The mass is thus one of the small group of meteoric irons, numbering at most nine or ten, of which the fall has been actually observed; and of these it is the largest." But in a later paper he expresses doubt as to the fall having been seen. We at least know that it fell in some quite recent period, and at the point where it was found. And Nejed, attractive in its peculiar history, is also interesting as being like Veramin of Persia (described by the writer in the December number of the *American Journal of Science*), one of the isolated, outlying meteorites. The great countries of Arabia and of Persia have each received, so far as recorded, but one of these celestial gifts. India, of almost exactly the area of these two countries combined, has the full number of fifty. The density of population in the Indian peninsula has doubtless something to do with the observing of these falls and the preserving of the stones. But this cannot account for the enormous disparity of the meteoric distribution. Nejed remains a grand and unique representative of isolated individuality.

HENRY A. WARD.

ROCHESTER, N. Y.

PRECAUTION IN THE USE OF GASOLINE.

IN those laboratories where gasoline is in use, it is necessary to observe a certain precaution with regard to the employment of rubber tubing, to which so far as I know, attention has never been directed. This precaution is that tubing which has been in use on burners should not be used afterwards for conducting gases, unless it has been very thoroughly washed out, or left to stand for some time. Serious accidents may result if, for example, a piece of tubing which has been used for some time on a burner, is immediately connected to a gasometer containing oxygen, for transferring that gas to cylinders or flasks for experiments. It would be natural to suppose that in such a case the washing out of the gasoline would be complete enough after one had passed through the tubing a volume of oxygen say two or three times as large as the capacity of the tubing itself. But under certain circumstances this is found to be by no means sufficient, as the following experiment illustrates.

Ten feet of thin-walled gray tubing having an internal diameter of one fourth of an inch, was used on a burner for half an hour, and was from there transferred immediately to a gasometer of oxygen; the gas was then allowed to pass through the tubing and fill over water a cylinder the capacity of which was 560 cc.

As might have been expected the gas so obtained in the cylinder exploded violently. The volume of such a piece of tubing is about 95 cc., and hence the gas drawn off would contain something less than one sixth of the mixed hydrocarbons.

A second cylinder was then drawn off, and when a taper was thrust into it an explosion was produced which was as violent as the first.

The third cylinder also exploded, though less violently; the fourth flashed back slowly to the bottom, and the fifth behaved like pure oxygen.

Thus in this case 2,240 cc. were used to wash out a tube whose volume was less than 100 cc. That is, the contents of the tubing were displaced more than twenty times before the gas was removed.

The experiment obviously points to a solubility of the gas in rubber, and this is not surprising in view of the ready absorption by rubber of the low-boiling paraffin hydrocarbons in the liquid state.

That a certain amount of gasoline is absorbed in rubber may also be shown by passing a piece of rubber tubing up into a tube filled with the gas and inverted over mercury. It is of course to be remembered that the gas supplied by such machines as that in use here (Springfield Gas Machine) consists of a mixture of the vapors of the hydrocarbons with a very considerable proportion of air, so that such absorption experiments as these can only be relative. An evident absorption takes place even with gasoline which does not show any abnormal behavior when conducted through the tubing; but when such behavior was manifested, the absorption was more than doubled.

The danger arising from this source lasts for only a short time after the gasoline tank has been filled; and indeed the results recorded above were obtained only twice, although four attempts were made immediately after the filling of the tank; this irregularity is probably due to the varying demands made upon the gasoline machine at different times.

The rubber tubing employed in the experiments was such as is furnished under the catalogue number 8012 by Messrs. Eimer and Amend. The gasoline was that supplied by the Gilbert and Barker Manufacturing Company; hence it is of normal quality; the phenomenon in question was observed both with the 86° and 90° products (degrees Baumé, equivalent to the specific gravities 0.66 and 0.65).

On the whole these observations point to the conclusion that gasoline of the kind described contains a small amount of more volatile components, which are given off mainly at first, and being perhaps more soluble in rubber than those which come over later, cause the abnormal behavior above described.

It would be interesting to know whether others who use gasoline have had occasion to notice this peculiarity.

A. P. Saunders.
Hamilton College, Clinton, N. Y.

ON THE SIPHON.

The writer wishes to call attention to an error that has crept into the text-books on general physics, written for high school and university classes. Most of the books either state explicitly that a siphon will not work if the shorter of its two legs is longer than the column of liquid that would be supported by the air pressure, or else give explanations of the siphon, from which this follows as a legitimate conclusion. As a matter of fact, a siphon can be made to work and draw the liquid to a height considerably greater than that representing atmospheric pressure.

The writer usually illustrates this fact in his lectures by means of the following simple experiment: Let *ABC* in the figure be a glass