IV. "Examination of the Meteorite which fell on the 16th February, 1883, at Alfianello, in the District of Verolanova, in the Province of Brescia, Italy." By WALTER FLIGHT, D.Sc., F.G.S. Communicated by Professor G. G. Stokes, Sec. R.S. Received May 17, 1883.

I gather from a short preliminary notice, which has been sent by M. Denza to Professor Daubrée, and has been published in a recent number of the "Comptes Rendus," a few particulars respecting the fall of this stone, and its general appearance.

The fall took place, with a loud detonation, at 2.55 P.M. on the day above mentioned; it was heard in the neighbouring provinces of Cremona, Verona, Mantua, Piacenza, and Parma. In Alfianello it is described as "épouvantable."

It descended from N.N.E. to S.S.W., at a distance of about 150 metres from a peasant, who fell fainting to the ground; telegraphic wires were set in motion, and the windows were shaken. It struck the ground about 300 metres south-west of Alfianello, in a field on an estate called Frosera, penetrating the soil, in the same direction as it passed through the air, from east to west, to a depth of about 1 metre, the path through the soil being about 1·50 metre. When taken out of the ground it was still a little warm. It fell complete, but was at once broken to pieces by the farmer of the estate.

The stone is oval in form, and somewhat flattened in the centre, the lower part being larger and convex, like a kettle, the upper part being truncated. The surface is covered with the usual black crust, and strewn with little cavities, now met with as individuals, now in groups, and in the eye of some people bearing a resemblance to the impression of a hand or the foot of a she-goat. The stone weighs about 200 kilos.

In structure this meteorite belongs to the group Sporadosideres oligosideres, and resembles *Aumalite*, being almost identical with the meteorite of New Concord, Ohio.

The substance is finely granular, of ash-grey colour; a polished surface appears to be finely grained and breccia-form, with the elements offering different gradations of colour. Metallic grains are disseminated, and little nests are noticed, of iron with one of the compounds, of a yellowish-white or bronze. In one place where the metallic grains are numerous they appear to bear to the stony portion the ratio 68 : 1000. The density of the stone is 3·47 to 3·50.

The meteorite was dried at 120°, and treated with solution of mercury chloride, and thus there were dissolved the troilite and nickel-iron. The troilite constituted 6·919 per cent. of the meteorite, and the nickel-iron forms 2·108 of the stone, with the composition—

Nickel	71·205
Iron	28·795
	100·000

Here, again, as I have shown in earlier analyses, the percentage of nickel present in nickel-iron increases as the percentage of nickel-iron becomes less.

By long treatment with hydrogen chloride the silicates acted upon by that reagent and the silicates which resist the action were separated, and the stone appeared to possess the composition—

Troilite	6·919
Nickel-iron	2·108
Soluble silicate	50·857
Insoluble silicate	40·116
	100·000

The soluble silicate, which amounts to 50·857 per cent., and constitutes one-half the weight of the stone, consists of—

Silicic acid	35·12	18·73	
Iron protoxide	51·43	11·43	
Alumina	1·518	0·707	16·37
Lime	4·644	1·327	
Magnesia	7·269	2·904	
	99·98		

This olivine, which gives a green colour to a fragment of the rock that is at once recognised, is of unusual composition, containing as it does more than 50 per cent. of iron oxide. It agrees most closely with that which occurs in the meteorite of Ensisheim, the first recorded fall which has been preserved in any collection; it fell 17th November, 1492. The latest analysis of that stone is by Frank Crook, of Baltimore, made in Gottingen in 1868, and he found in the soluble portion of that stone 52·90 per cent. of iron oxide.

The insoluble portion, which forms 40·116 per cent. of the stone, has the composition—

Silicic acid	56·121	29·93	
Iron protoxide	13·397	2·97	
Chromium oxide	8·281	..	11·95
Lime	6·712	1·917	
Magnesia	17·263	7·065	
	102·174		

The bronzite, or rather augite, also agrees very well with that

which forms the insoluble portion of the meteorite of Ensisheim. What was supposed to be alumina was further examined, and was found to be almost entirely chromium oxide, doubtless present in combination with some iron protoxide, alumina, and magnesia as chromite. And it appears not improbable that this part of the meteorite contains some tridymite, a few per cent., in fact.

V. "Circular concerning Astronomical Photography." From E. C. PICKERING, Director of Harvard College Observatory, Cambridge, Mass., U.S.A.

ASTRONOMICAL PHOTOGRAPHY.

The important part that photography is likely to play in the future of astronomy renders it desirable that an opportunity should be afforded to astronomers to acquaint themselves with the improvements continually made in this branch of their science. This could best be done by the establishment at convenient places of collections designed to exhibit the progress of photography as applied to astronomical observations.

The Harvard College Observatory has some special advantages for forming such a collection, since it already possesses many of the early and historically important specimens which would naturally form part of the series. Among these may be mentioned four series of daguerreotypes and photographs of various celestial objects taken at this Observatory. These series were respectively undertaken in 1850, 1857, 1869, and 1882.

At present, the astronomers of the United States have no ready means of comparing their photographic work with that done in Europe, or even with that of their own countrymen. The proposed collection of photographs, so far as it could be rendered complete, would greatly reduce the difficulty.

It is therefore desired to form, at the Harvard College Observatory, a collection of all photographs of the heavenly bodies and of their spectra which can be obtained for the purpose; and it is hoped that both European and American astronomers will contribute specimens to this collection. Original negatives would be particularly valuable. It may happen that some such negatives, having slight imperfections which would limit their value for purposes of engraving, could be spared for a collection, and would be as important (considered as astronomical observations) as others photographically more perfect. In some cases, astronomers may be willing to deposit negatives taken for a special purpose, and no longer required for study, in a collection where they would retain a permanent value as