

Our Astronomical Column.

COMMENCEMENT OF THE GREAT PERSEID SHOWER OF METEORS.—The first Perseids probably appear at the end of June. They have certainly been observed in the first week of July. The earliest meteor of this shower, which has been doubly observed and the real path of which has been computed, was seen on July 8, 1918, by Mrs. Fiammetta Wilson and Miss A. Grace Cook. This year the moon left the evening sky about July 6, and the sky should be watched for traces of oncoming Perseids. At this time of the year meteors generally increase in numbers, and especially after the middle of July. The Perseids gradually become more abundant, and among the minor displays the chief ones are:

δ Aquarids ...	338-11	o Draconids ...	291+60
α Capricornids .	303-11	λ Andromedids .	350+51
θ Cygnids ...	292+52	ζ Pegasids ...	332+10
α Perseids ...	48+44	β Cepheids ...	333+71
α Cygnids ...	315+48	Lucertids ...	334+51

The radiant point of the Perseids moves N.N.E. as follows:—

July 8 ...	9+46	Aug. 1 ...	33+55
16 ...	16+49	9 ...	43+57½
24 ...	24+52	17 ...	54+59

THE EXPANDING DISC OF NOVA AQUILÆ.—Dr. Lunt contributed a paper on this nova to the June meeting of the Royal Astronomical Society which contains some interesting calculations on the rate of expansion. It was written before the recent Lick measures, which indicate a mean annual rate of increase of diameter of 1.9", but he notes that Barnard's measures gave an increase of 2" in the first six months, so that the rate may be diminishing.

Assuming the displacements of the edges of the bands in the spectrum to be a measure of the rate of expansion of the nova into a planetary nebula, Dr. Lunt found a radial velocity of 1500 km./sec., which would give a diameter of 1/100 light-year in a year, and would imply a distance of the nova of 1000 light-years.

According to Van Maanen's parallax of the ring nebula in Lyra (the largest nebula on his list), its diameter is 0.16 light-year. The expanding nova would attain this size in sixteen years if the rate were maintained.

Dr. Lunt notes that in the nova spectrum there are fine dark lines close to the normal positions of the H and K lines of calcium, which indicate a motion of approach to the sun of 17 km./sec., exactly the amount due to the sun's own motion. A similar feature has been noted in several other stars, and the suggestion made that these lines arise from clouds of very tenuous calcium vapour at rest in space. On this view these lines exist in the spectra of most stars, but are hidden by the star's own lines unless the latter are shifted by a large radial motion.

THE NEW MINOR PLANET GM.—It will be remembered that last January Señor Comas Sola, of Barcelona, discovered a new minor planet which was much brighter than most of those discovered in recent years, and was taken for a comet by some observers. The object was very well observed for several months, so that an accurate determination of the orbit is possible, and there is not much fear of its being lost again, as has happened to many of these little planets. The discoverer has now given it the name "Alphonsina," in double homage, as he says, to Alphonso X. of Spain, who was known as "the Savant," and to the present king, Alphonso XIII.

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Annual Visitation of the National Physical Laboratory.

ON the occasion of the visitation of the National Physical Laboratory by the General Board on June 22, a large number of distinguished visitors availed themselves of the opportunity of inspecting the laboratory. The visitors were received by the chairman of the board (Sir Joseph J. Thomson) in the 7-ft. wind channel of the new aeronautics building, and afterwards visited the various departments of the laboratory, where exhibits illustrative of recent work were on view.

The exhibit in the engineering department was noticeable for the large number of machines for testing resistance to shock and to fatigue. The day is past when a simple test in tension is considered to yield sufficient data for structural material, and many other forms of test are now in use. One machine, designed by Dr. B. Haigh, subjects the specimen, by means of an alternating magnetic flux, to a maximum load of ±0.75 ton reversed two thousand times every minute. Another instrument, designed and constructed in the department, tests the endurance of stranded testing cables passing over pulleys. Among the impact testing machines, many of which were designed and made in the department, mention may be made of one in which both hammer and anvil are swung; by this means it is possible to obtain a striking velocity as high as 43 ft. per second. Machines for measuring the elastic limits of materials at high temperatures and for determining the efficiency of chains, gears, etc., were also among the exhibits.

In the aeronautics department various wind channels were operating, measurements of the performance of air-screws, the effects of aeroplane bodies on screws, and stability tests on bodies being carried out. Apparatus for measuring the skin-friction of air passing over thin plates was also exhibited.

Amongst the exhibits in the metallurgy department were a number of examples of failures of steel and alloy articles which had been sent in for investigation. Photomicrographs illustrating sections from these, as well as various sections under the microscope, were shown.

The representation of the constitution of a series of ternary alloys has never been an easy matter. Three models were exhibited which are designed to overcome this difficulty. They represent parts of the "diagram" for copper-aluminium-zinc alloys and a part of the aluminium-magnesium-silicon "diagram."

Considerable improvement has recently been introduced into the manufacture of thin-walled refractory tubing for thermo-couple protection and insulation; the apparatus with which it is made was shown in operation.

Demonstrations of the rolling of manganin, cast at the laboratory, into rods prior to wire-drawing were given in the rolling mill. Much valuable work has been done, in conjunction with the electricity department, on this metal, and it is now possible to produce manganin wire equal to the best pre-war material which was imported from Germany.

A modified form of the Shakespeare katharometer, used for measuring the permeability of balloon fabric, was in operation in the aeronautical chemistry division.

The exhibits in the Froude national tank can be divided into three heads. The first dealt with tests on the trim, the longitudinal stability, and the resistance of hulls of flying-boats. The second was work which was being carried out for Lloyd's Register in