

reflector. This assumes that the small portion observed represents fairly the entire sky. It is well known that the nebulae are much more numerous in some parts of the sky than in others. This is a tendency which, so far as we know, affects large and small nebulae alike.

The fact that a considerable number of other subjects than the nebulae (presumably non-nebulous regions) are included in the program, indicates that the portion observed is fairly representative of the whole sky.

Longer exposures, more sensitive plates, and more perfect photographs will undoubtedly reveal some nebulae which do not now appear, and others which are confused with the faint stars. It seems probable, therefore, that the number of the nebulae will ultimately be found to exceed a million.

The positions of the new nebulae discovered on the Crossley photographs have been determined, and a catalogue of them will be printed in the volume of reproductions of nebulae and star clusters, soon to be issued.

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MOUNT HAMILTON, CALIFORNIA,

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### THE NINTH SATELLITE OF SATURN.<sup>1</sup>

It is probable that in the future there will be no difficulty in securing a sufficient number of observations of *Phoebe*, the Ninth Satellite of *Saturn*, not only to correct the present elements, but to study the large and interesting perturbations to which it is subject. It can be observed visually with the largest refractors, and can doubtless be photographed with large reflectors, as well as with the Bruce telescope, by the aid of which Professor William H. Pickering discovered it. Since the observations enumerated by him in the *Harvard Annals*, 53, 55, 60, *Phoebe* has been closely followed by Professor Bailey. The approximate positions obtained by him with the Bruce telescope are given in Table I, and the positions found by Professor Barnard visually on August 8 and September 12, 1904, with the

TABLE I.  
Positions of *Phoebe*.

Desig.	Date	G. M. T.	Exp.	$\alpha$	$\gamma$	Desig.	Date	G. M. T.	Exp.	$\alpha$	$\gamma$
	1904	h m	m	'	'		1904	h m	m	'	'
A 6771	June 18	18 20	120	+24.20	+6.65	A 6844	Aug. 4	14 44	..	+10.86	+1.61
A 6773	20	18 30	120	+23.84	+6.65	A 6846	5	14 32	..	+10.60	+1.37
A 6801	July 6	16 15	120	.....	.....	.....	8	18 0	..	+ 9.70	+0.98
A 6804	7	16 14	120	.....	.....	A 6854	15	19 15	..	+ 6.83	+0.15
A 6807	11	16 58	180	.....	.....	A 6856	16	18 51	..	+ 6.49	0.00
A 6841	Aug. 2	14 47	...	+11.56	+1.85	.....	Sept. 12	12 36	..	+ 5.93	-4.28

<sup>1</sup> *Harvard College Observatory Circular No. 87.*

forty-inch Yerkes telescope, and announced in the Harvard *Bulletins* Nos. 157 and 159, are added, to bring together all the material so far collected. The designation of the plate, the date, Greenwich Mean Time, exposure, and rectangular co-ordinates referred to *Saturn* as an origin, are given in the successive columns.

For some unexplained reason, *Phoebe* has not been found on the plates taken in July. The record for the plates taken in August, has not yet been received from Arequipa.

A NEW VARIABLE IN *HERCULES*.

The meridian photometer, like other meridian instruments, is not adapted to the discovery of variable stars. It may therefore be of interest to note the discovery of such an object by the writer, with the twelve-inch Meridian Photometer. On August 23, 1904, while measuring the star  $+24^{\circ}34'19''$ , mag. 9.4, it was noticed that a brighter star, having the photometric magnitude 9.5, and not in the Bonn Durchmusterung, preceded it. An examination, the next day, of the photographs of this region at once showed that the star was a variable of long period having a range extending at least from the magnitude 9.5 to  $<13$ . The approximate position for 1855, is R.A.,  $18^{\text{h}} 20^{\text{m}} 26^{\text{s}}.0$ ; Dec.,  $+24^{\circ} 56'.4$ .

EDWARD C. PICKERING.

SEPTEMBER 12, 1904.