Echelon Spectroscopes and the Green Mercury Line.

IT is interesting, in reference to Prof. Nagaoka's letter in NATURE of April 23 (p. 581), to note that I exhibited photographs of the green mercury line, showing a number of new components, at the Leicester meeting of the British Association. I did not publish the number or position of the lines in the report, not being quite satisfied that some of the fainter ones might not be produced in the instrument, and I discovered later (NATURE, vol. lxxvii., pp. 198 and 222) that secondary effects, due to light reflected in the echelon, have to be taken into account. Since then Von Baeyer's measurements with a Lummer and Gehrcke spectroscope and Galitzin's echelon measurements have confirmed two of the lines that were new, and added confirmation to my values for the old ones. A doubt still remains, however, about some of the fainter lines, and as a comparison of the values given by different instruments is the most obvious way of confirming the true components and eliminating false ones, I give my results for comparison below.

It is usual in stating results of this kind to give the wave-length intervals between the components and the principal line, but this leads to mistakes in comparing results, because the principal line given by most of the observers has been divided by Von Baeyer and Nagaoka into two components, and by taking the brighter component as the principal line they shift the reference point about 15 milli-Ångström units, and the agreement, which would otherwise be evident, is quite obscured. I have given below the distances of the various components from the component of shortest wave-length, which happens to be a good reference line. The differences shown in Prof. Nagaoka's comparison are in this way much reduced.

Comparison of Recent Echelon Spectroscope Determinations of the Components of the Green Mercury Line, λ 5461.

Janicki	Galitzin	Nagaoka	Stansfield	
0 ...	0 ...	0 ...	0 ...	17 bright
			23 ...	faint
		31		
			41 ...	very faint
			59 ...	,,
		72 ...	75 ...	,,
			93 ...	,,
		105 ...		
133 ...	137 ...	137 ...	135 ...	12 bright
166 ...	168 ...	163 ...	165 ...	12 ,,
	189 ...	189 ...	188 ...	8 medium
232 ...	**236** ...	{223 / **247**} ...	**232**	{52 bright / *principal line*
		280 ...	277 ...	5 faint
320 ...	321 ...	315 ...	319 ...	16 bright
			345 ...	8 medium
365 ...	365 ...	356 ...	363 ...	12 bright
		390 ...	386 ...	8 faint
			409 ...	very faint
		448 ...	448 ...	14 faint
		477 ...	473 ...	very faint

The numbers give the distances of the components from the component of shortest wave-length in milli-Ångström units. In the fifth column the widths of the brighter lines, taken from the photographs, are given in the same units

It will be seen that there is generally close agreement as to the position of the five bright companion lines. As to whether the principal line is single or a close double, it is interesting to note that several of my photographs showed it divided, the brighter component being on the longer wave-length side as Nagaoka and Von Baeyer give it, but owing to the secondary effects in the echelon I have not been able to make sure of the division.

Prof. Nagaoka's values agree fairly well with mine for all the faint lines on the list below the principal line, although he does not give the lines on my photographs at 345 and 409, but we do not agree about the positions of those which fill in the long gap between the first and second bright companion lines. The agreement is not sufficiently good to exclude the possibility of some of the faint lines having their origin in the echelons.

H. STANSFIELD.

The University, Manchester, April 25.

Appearance of the Slug Testacella in a Flooded District.

SOME time ago I wrote to you to say that the remarkable slug Testacella occasionally appeared in large numbers on the surface of the ground in my garden. This phenomenon only occurs when the district is heavily flooded. The abnormal weather of the last half of April has brought severe floods out in many parts of the Thames valley, and yesterday, through the kindness of a friend who now occupies the house and garden referred to, I was able to collect about a hundred of these animals. I shall be pleased, therefore, to send specimens alive or preserved to those correspondents who wrote to me on the subject when my previous letter appeared in NATURE, whose addresses I have mislaid, unfortunately, while changing houses. I may add that it is only in this particular garden that I have seen these animals. What the conditions may be that cause the slugs to live there and not elsewhere, so far as I know, in the neighbourhood, I am quite unable to suggest. They live too far down even in wet weather to be found during ordinary gardening operations.

M. D. HILL.

Eton College, Bucks, May 3.

THE TOTAL SOLAR ECLIPSE OF JANUARY 3, 1908.

SINCE the brief announcement made in this journal (vol. lxxvii., January 23, p. 273) in the first month of this year, relative to the success of the eclipse expedition organised by Mr. F. K. McClean, further information has become available.

The communications received give a complete account of the doings of the expedition from the time it left Auckland in the Union S.S. Company's *Taviuni*, which Mr. McClean had chartered specially for the expedition, to its return to that port. A detailed report, containing the scientific results of the expedition, will in due course be presented to a society, but a short sketch will no doubt be of interest to many readers of this journal who have been waiting for further information.

The members who finally formed Mr. McClean's party were as follows:—Joseph Brooks, F.R.A.S., retired surveyor in charge, Trigonometrical Survey, N.S.W.; W. E. Raymond, F.R.A.S., first assistant, Sydney Observatory; J. W. Short, astronomical photographer, Sydney Observatory, and magnetic observer; Rev. F. W. Walker, of Auckland; Henry Winkelmann, of Auckland.

The party left Auckland on the afternoon of December 12, 1907, arriving at Tahiti on December 20; Flint Island was reached on December 23, at 7 a.m. The expedition from the Lick Observatory was already located on the island, and Prof. Campbell came off to meet the ship.

The landing place is described as consisting of a small channel blasted through the reef and extremely dangerous. In spite of the rough surf, everything was safely landed. As it was raining hard all the time, the first piece of work was the erection of the tents and the temporary housing of all the instruments in them.

The camp was located amongst a number of cocoanut trees, some of which were at least 100 feet high, rendering the horizon invisible. Considerable lopping of branches was found necessary, not only to allow sufficient sky field for the efficient working of the large siderostat, but room for the tents themselves. The accompanying illustration (Fig. 1) will give the reader some idea of the tropical and dense nature of the vegetation on the island. The negative from which this illustration has been taken was made by Mr. Winkelmann.

December 24 was even wetter than the previous day, but in spite of that the remaining tents were erected, and the first layer of concrete for the large