Tested thus broadly and philosophically, the meteoric bombardment hypothesis appears in its true colours as a monstrous physical absurdity. It assumes a perpetual flow of solid masses converging continuously from everywhere towards everywhere; or otherwise a state of things which could only endure through the time which these meteoric masses would occupy in travelling the semi-distance between the neighbouring suns. These little journeys ended, the interstellar space must, according to this hypothesis, become a sterile vacuum, all the lights of heaven must go out, eternal darkness must rest upon the face of the deep, and everlasting death pervade the universe.

W. MATTIEU WILLIAMS

The Cockroach

I HAVE only to-day noticed the Rev. C. J. Robinson's letter on this subject in your issue of the 29th Sept. A friend of mine, whom I have known all my life, who occupied an important trust as Bank Manager in India last year, and who is at present home on sick leave, assures me that Dr. Norman Macleod is wrong when he denies the nail-nibbling propensities of the cockroach. My friend had been in Kurachee for some time, and on his journey from that town to Bombay by sea he was annoyed one night in his berth by some insect crawling over his face; half asleep and half awake he put up his hand to his face and sent the insect to the foot of his berth. Shortly after he was awake by a pain at his great toe, and on looking at it he discovered that a cockroach had nibbled off all the nail down to the quick.

JAMES DURIE

Aberystwith, Oct. 8

Were Cockroaches known to the Ancient Greeks and Romans?

YOUR correspondent, Rev. C. J. Robinson, drew attention in your columns (NATURE, Sept. 29) to the question whether these troublesome insects were known to the Ancient Greeks and Romans; he says, "there is a good deal to lead one to suppose that the *μυλακρίς* mentioned by Aristotle, and the *Blatta pistorum* of Latin writers was the same as our loathsome pest." I think Mr. Robinson is mistaken in supposing that the *μυλακρίς* is mentioned by Aristotle, at least I can find no mention made of this insect in the writings of the Stagirite. The word *μυλακρίς*, meaning some kind of insect, occurs in the fragments of Aristophanes preserved by Pollux, who amongst other meanings of the term gives the following one:—ζῷον ἢ ἐν τῷ μύλωνι γινόμενον, and then quotes this couplet from Aristophanes,

Ἴνα ξυνῶσω ὅπερ ἤθεσθον βίω,
Σκώληκας ἐσθιοντες, καὶ μυλακρίδας.

"where they may partake of the food of which they are fond, eating worms and *mylacrides*." It would not be possible to say what the *μυλακρίς* here denotes, but from the creature being often produced in mills, it may possibly mean a "Cockroach," though a "meal-worm" (i.e., the larva of the beetle, *Tenebrio molitor*) would suit equally well. The Greeks, however, had a word which may well represent the Cockroach, though it is even here impossible to speak with certainty. The word, *σίλφη*, it is probable denotes this insect. Aristotle (Hist. Anim. viii. 19. § 4) uses the word once; he enumerates the *σίλφη* amongst insects which cast their skins. The Scholiast in the "Peace" of Aristophanes says the *σίλφη* is an ill-smelling insect (*δυσώδμος*). Aetius (8. 33.) speaks of "the fat of the stinking *σίλφη* which inhabits houses." The epigrammatist Evenus (Analect. i. p. 167) speaks of the *σίλφη* of the booksellers' shops, and applies to it the epithets, page eating (*σελιδηφάγος*), destructive (*λωβήτειρα*), black-bodied (*μελαινόχρως*). Lucian speaks of the mere book collector as providing pastime for mice and habitations for *σίλφη*, and cuffs his slaves for not keeping the mice and *σίλφη* away. (Advers. Indoct. iii. 114, Ed. Hemsterhus.) The Scholiast here gives a description of the *σίλφη* which Schneider with some reason refers to some kind of *Leptisma*. Elian (H. A. i. 37) says that the *σίλφη* infest swallows' nests; these cannot be cockroaches. Galen and Paulus Aegineta apply the epithet, *βδέονσαι*, to the *σίλφαι*. Dioscorides (ii. 38) says that the inside of the *σίλφη* found in bake-houses when pounded with oil is good for pains in the ear. This leads me to the *Blatta* of the Romans. "On pulling off," says Pliny, "the head of a *blatta* it gives forth a greasy substance, which, beaten up with oil of roses, is said to be wonder-

fully good for affections of the ears." He speaks of the disgusting nature of this insect, one kind of which is known by the name of *Myloeccon*, and found in mills (Nat. Hist. xxix. 39). In another place (xi. 34) Pliny says, "It is the nature of the *blatta* to seek dark corners and to avoid the light; they are very often found in baths." According to Virgil, "the light-avoiding *blatte*" find their way into bee-hives (Geor. iv. 243). Horace (Sat. ii. 3, 119) ridicules an old miser for sleeping on straw and leaving his bed clothes in his chest, the food of *blatta* and *tinea*, "*Blattarum ac tinearum Epulæ*." Martial (Lib. iv. Ep. 37.) says unless his books are well put together they become the prey of *tinea* and *blatta*.

Constrictos nisi das mihi libellos
Admittam tineas trucesque blattas.

From the above passages it will be seen that the *blatta* was a destructive insect to clothes, books, &c., that it avoided the light, and was fond of warm places, that it frequented mills and exuded a greasy substance from its head, that it was a disgusting creature (probably in allusion to the smell) all of which particulars are true of cockroaches, and as there are many species of the family, and are widely distributed over all parts of the globe and must have been known to the ancients, I think there is good reason for concluding that the cockroach was known to the Greeks by the name of *σίλφη*, and to the Romans by that of *blatta*.

W. HOUGHTON

The Aurora Borealis

I SHALL be obliged if you will put on record a few scattered notes which I took of the splendid Aurora Borealis of October 25, seen from Arthingworth, Northamptonshire. When I first observed it at half-past five P.M., a crimson glow extended in an irregular band from N.N.E. to W., most prominent at about 20° to 30° above the horizon. This increased in height and breadth until it nearly reached a point S.W. of the zenith, and about 15° W.N.W. of the star Vega. At this time the northern part of the sky was perfectly free from aurora; gradually that part and the whole dome of the heavens, with the exception of a section from W. to nearly S., became filled with luminous streamers. These, for about 20° on each side of N., were white, the others crimson striped with white or rather greenish light, but the green I believe to be an effect of contrast, as where similar streamers were distant from the red light they were white.

The white or green streamers appeared to eclipse the red light, they changed their size, shape, and position, while the red continued comparatively unchanged. There were also dark streamers which, at first, I believed to be mere spaces without light, and to be caused by the darkness beyond, but I became ultimately convinced (as far as one could be convinced by appearances so subject to illusion) that they formed a part of the phenomenon itself. These streamers or long brushes could be seen beyond and clear of the luminous portion of the aurora, leaving the normal light of the sky between them and it, and hanging like long horse-tails, or like the fringes of rain seen on the edges of a distant rain cloud; changing their shape and position just as the luminous streamers are seen to do.

The most remarkable part of the phenomenon, however, was the circle of sky, or what may be called the pole of the aurora, to which the streamers converged. It appeared to embrace about from 7° to 10° of space. To an ordinary observer it might have appeared occasionally to shift its position to some extent, but, as far as I could judge during an hour's observations, this was not really the case, flickerings at times covered portions of it, and at other times the whole became faintly luminous; but by marking its position with reference to some small stars, this seemed to me to be unaltered. Most singular were the terminations of the streamers they culminated at this circle, not being undefined or gradually evanescent, but having angular tips far brighter than the portions immediately beneath, the nearest illustration to which I can give is an inverted fish-tail or bating gas burner, except that this gives a feeble light at the point, while the aurora tips were whitest and brightest there, the streamers now fading off, and now becoming brighter and tinged with red as they got to 40° or 50° from the horizon; the tips varied constantly, but preserved the mean distance from the pole or focus of the aurora. The position of this was, as far as I could ascertain without star maps or instruments for observation, about 15° W.N.W. of Vega. The convergence of the beams was not in appearance conical, but dome or cupola shaped; this was, however, in all probability an optical illusion. Whether