again and again questions of this kind: "Add 9, 8, 6, take away 12, multiply by 6, divide by 3, etc., etc., The pupils will solve them with marvellous rapidity, and they may be beneficial, but such questions give me the cold chills. Another very common sample is—48 is $\frac{2}{3}$ of how many times 9. An occasional question like either of these is not objectionable, but to follow them up day after day, is a waste of time.

Some of you may say: What kind of questions would you give? It would depend upon the subject to come before the class. Let us suppose it to be mensuration. I would first obtain the pupils' idea of an inch, foot, yard and rod, by getting them to draw them on the board or floor, and testing them by the foot rule. The next step will be to draw the square inch, square foot, and square yard. The pupils can then estimate the square inch on the surface of books, slates, desks, and black-boards. How many square inches in a pane of glass 12 x 9? How many square feet in a black-board $3\frac{1}{2}$ x 5? What would be a convenient size in rods for a school lot containing one half acre? How many square yards in the floor of the room? Carpet it with carpet $\frac{3}{4}$ yard wide? Paper the walls and plaster the ceilings! From the inside of the school room you can go to the outside and estimate on boards, shingles, clap-boards, etc. Mechanical accuracy is important, especially in the earlier grades, but the development of thought is the primary object of mental arithmetic.

For the REVIEW.

Our Four Brightest Stars.

This is the best time of year for seeing all four of them up together in the evening.

Not *the* four brightest, because there are two of these that we cannot see at all. And *stars,* not *planets*, for this article does not condescend to notice mere solar appendages, notwithstanding the fact that some of them make a much more dazzling display of splendor with their second-hand light than do the brightest of the self-luminous stars—vastly larger than our planets, but infinitely farther off.

The twenty brightest stars in the sky are classed as being of the first magnitude, but all the twenty are not equally bright. The Dogstar is an easy first in the matter of brilliancy, and, according to photometric measurements, he is twelve times as bright as Fomalhaut, the faintest of the twenty. Second and third in order of brightness come Canopus and Alpha Centauri. Like the Dogstar, these belong to the southern celestial hemisphere, but, unlike him, they are too far south to be visible from these latitudes. Alpha Centauri is famous as being the nearest of all the stars—so far as known—to our solar system. Canopus is 36° nearly due south of the Dogstar, and just grazes the southern horizon 6° to the south of Yarmouth. Next to these come the three great northern stars, Arcturus, Vega and Capella; and they, together with the Dogstar—which is also called Sirius, are our four brightest stars.

To all places north of latitude 44° Capella is always above the horizon. In that latitude Vega spends nineteen hours above the horizon and only five below, out of every twenty-four; Arcturus, a little under fifteen above and a little over nine below. Farther north, these two spend more time above and less below. With Sirius the case is different. Being a southern star he favors southern latitudes more than northern. If there are any astronomers living within 16° of the south pole they have this grandest of all the stars above their horizon all the time. In north latitude 44° we have him with us for only nine and three-quarter hours out of the twenty-four, and farther north his daily visits are shorter still.

Of course they are not always visible when above the horizon, for in the day-time the light of our own star—which takes only eight minutes to reach us—quenches the light of their rays, thinned out by distance and perhaps enfeebled by their years of travel. And yet this is not altogether true of *these* stars. It is not a very difficult matter to see Sirius with the naked eye in the full glare of sunlight—not at midday, as we can easily do with Venus, but while the sun is low in the east or west. And with a common field-glass I have often seen him on or near the meridian when the sun was higher in the sky than he was. This is one of the two best seasons of the year for this kind of observation, but no one need hope for success at it unless he knows exactly where to look for his star. If the observer does succeed he will be delighted with his glimpse of the tiny needle-point of light sparkling like a splinter of diamond in the sunlit blue. It is not nearly so easy to see any of the other three in daylight, but if star-gazers will only take the trouble to try, they will find that they can see them without much difficulty,—if not in full daylight, at least in twilight so strong as to be scarcely distinguishable from it.

At nine o'clock on any evening there will be at least two of the four in sight; and, if only two, they will be Vega and Capella, or Sirius and Capella. Arcturus is never above our horizon except in company with at least two of the others, and when Sirius and Vega are up together, Capella at least is always there to watch them. For more than half the year there are three of them above our horizon at nine in the evening, and of course Capella is always one of the three. To see the whole