	Miles.
Diameter of the earth,	8,006
Smallest Diameter of Jupiter and largest diameter of Saturn	80,000
Diameter of Saturn's Ring nearly	150,000
Diameter of Sun,*	880,000
Distance of the moon, from the earth,	240,000
Distance of the earth from the sun,	96,000,000
Distance from the remotest planet (the New Planet) from the sun,	7,400,000,000
Greatest distance of comet of 1680,	12,000,000,000,000
Distance of the nearest fixed star, *a* Centauri,	21,000,000,000,000
Distance of 61 Cygni,	558,000,000,000,000

When the observer turns his attention to the heavens, his first desire is to know the number of the stars which are visible to his naked eye, and he is surprised to find it much less than he anticipated. Astronomers have determined that in both hemispheres they do not much exceed three thousand, namely, 20 of the *first* magnitude, 70 of the *second*, 220 of the *third*, 500 of the *fourth* 690 of the *fifth*, and 1500 of the *sixth*. But the number of stars capable of being seen by the telescope, has been reckoned above *one hundred million!* and if we now regard it as probable that all nebulæ are clusters of stars, as indicated by Lord Rosse having resolved by his great telescope the nebula of Orion, the number of stars, or *suns*, or *systems*, may be regarded as beyond the power of numerical expression.

In surveying the starry heavens, astronomers naturally directed their attention to the stars of the first magnitude. Although the smallest of our planets, when viewed with a telescope of considerable magnifying power, exhibit a distinct circular disc, yet when the same telescope was directed to Sirius Arcturus and others, no trace of a disc was seen, and the star appeared as a brilliant point of light. This fact alone demonstrated that they were placed at an enormous distance from the earth; but as soon as it was found that, even when observed with good instruments, the same stars did not change their place in the heavens, when viewed from the two extremities of the earth's orbit, a base of 190 millions of miles, astronomers despaired of obtaining anything like a measure of their distance. By the use of improved instruments, however, and improved methods of observation, it has been determined by Mr. Henderson and Mr. Maclear, after years of incessant labour, that the parallax of the nearest fixed star *a Centauri*, is a little more than nine-tenths of a second, indicating a distance so enormous, that if a sun were large enough to fill the whole of the earth's annual orbit, that sun would, when seen through a powerful telescope, have a diameter of only 9-10ths of a second! † The celebrated Prussian astronomer, Professor Bessel, whose death the whole scientific world is at present deploring, found a parallax of *one-third* of a second in the double star 61 *Cygni*, ‡ and M. Struve of Pultova, a Russian astronomer of distinguished reputation, has discovered a parallax of a *quarter of a second* in *a Lyræ*.§

After the telescope had undergone considerable improvement, the attention of astronomers was directed to what are called *double stars*, or to two stars of the same or of different magnitudes, that are, or appear to be, situated near one another. A star will appear double, or will be *optically* double, even when the one is far removed from the other in space, and has no connection whatever with it; but those stars only are properly called double stars, or are *physically* double, in which the one revolves round the other, and thus forms what is called a *Binary System*. M. Argelander has endeavoured to separate the optically double stars from the rest. Selecting 27 double stars, whose distances varied from 32 seconds to 7 minutes, he found that 13 were physically double, 9 optically so, and 5 doubtful. Conclusions, however, of this kind cannot be received as rigorously true, till after centuries of observation, and even then it is still possible that an optically double star may be a system in which the period of revolution is extremely great. Captain Smith has given us the following list of stars optically double, Argelander's distances being slightly altered in accordance with his own instruments :—

a Lyræ	1	and 11 mag.	43 sec's distant.
a Tauri	1	and 12 "	106 "
a Aquilæ	1¼	and 10 "	152 "
β Geminorum	2	and 12 "	208 "

* The numbers here given are sufficiently accurate, and most of them are easily remembered.

† The same astronomers have found in Sirius a parallax "not greater than *half* a second, and probably much less."—*Cycle of Celestial Objects*, vol. ii., p. 163.

‡ Bessel makes it 0".3136, which gives for the distance of the star 657,700 mean distances of the earth from the sun, or 62,481,500,000,000 miles.

§ The Astronomer Royal has not been able to confirm this result.

SO FEW AT THE PRAYER MEETING.

It is a general subject of complaint, that a very small proportion of the members of the church are found in attendance at the meetings for prayer. This is true, to a still greater extent, of the male members than of the females. That this is not to be attributed, in all cases, to an inability to command the time, is very manifest. In a revival of religion, the same class of persons can easily find time to come out almost every evening of the week. There is too much reason to believe that one great source of the difficulty is that which is suggested in the following article from the *Puritan*. We hope that the individuals to whom the article applies will give an honest answer to the questions which are subjoined, and "do the first works."

1, Are not a very large proportion of the younger male members of our churches, habitually absent from the weekly lecture, prayer or conference meeting? And do not this class beyond all others need their quickening and purifying influence?

2, Do not many, and in some places, most of these junior male members, belong to one or more of the secret societies, which have of late been enlisting multitudes in their ranks? and do they not, must they not, on pain of being fined, attend the weekly meetings of the societies to which they respectively belong? Do they not thus fetter themselves with obligations and responsibilities which consume the time that of right should be given to the weekly religious meeting?

3, Do they not also show that they have here a "chief joy" which they prefer above Jerusalem, by often turning out in great numbers, and with solemn pomp, to honour the burial of a member, or wife of a member of one of their lodges, who made no pretensions to religion, while they take no pains to attend the funeral of a deceased brother or sister of their own church, that has adorned the gospel in life and in death?

If these questions are not wholly groundless—as with respect to some places I am sure they are not—then I hope all concerned will ponder the subject in the fear of God. For one, I cannot but say, it seems to me that every Christian must be ready to say of all associations which lead professors of religion to love their meetings more than those of the church of Christ, "O my soul, come not thou into their *secret*; unto their assembly, mine honour, be not thou united."

APPLES OF GOLD.

And the Lord had respect unto Abel, and to his offering; but unto Cain, and to his offering, he had not respect.—Gen. iv. 4, 5.

Here are two brothers, bringing each of them an oblation to the Lord. Cain, as a husbandman, brought of the produce of the ground he cultivated; Abel, as a shepherd, some of the firstlings of his flock, with the fat of them; consequently, both believed that there was a God that made the world, and was to be worshipped; and yet one was accepted, and the other rejected. Cain's sacrifice was wholly eucharistical, or a thank-offering to God, for the blessings of his providence. Abel's was not only of the eucharistic, but of the expiatory kind; and while it was an expression of gratitude for the blessings of Providence, it was also typical of the atonement by Christ, and expressive of his hope of redemption through him; but what made the chief difference between them was, that Cain presented his offering while his heart was withheld, and without faith in Christ; so was of the wicked one. Abel brought both his person and sacrifice, an offering to the Lord: he presented his oblation, and performed the other parts of worship, with faith in God, and the promised Saviour, and with sincerity, humility, and love. Thus God had respect to him and his offering; accepted first his person as justified, then his offering; but neither the person nor offering of Cain found acceptance with God. Reader, mark the difference; by this, Abel speaks to thee: art thou in a state of acceptance with God by faith in Jesus? Is thy whole dependence for pardon and life on Christ crucified? Dost thou obey from a principle of love? Then thou shalt be blessed with righteous Abel here and for ever!

Thank-offerings paid to God
Still need th' atoning blood;
Faith makes them with acceptance go,
As Cain and Abel here do show.

—*Bogatzky's Treasury.*