

follow the motion of the stars. In this great monster of a 'scope, he saw men had been faced with the delicate problem of moving a combined weight of 45 tons. But the makers had met the difficulty and overcome it, creating a mechanism the most perfect yet reached in the history of the world. Aided by the experience gained by the former large refracting telescopes, the Yerkes, with 40-inch, and the Lick, with 36-inch, and by new knowledge born of toil and experimenting, the men engaged upon building this last word in sky-searchers had manufactured and put together and into operation a thing monstrous huge and weighty, yet so controlled and shaped that the strength of a child rightly guided might operate it. In addition, the observer noted that the telescope was moved from one position to another and set and guided wholly by electric power, there being seven motors and several solenoids and magnetic clutches for the work. He found that the quick motion motors moved the telescope at the rate of 45 degrees per minute, one revolution in 8 minutes, in both co-ordinates. The slow motions are possessed with two speeds, a fast one for fine setting at the rate of one revolution in 36 hours, and a slow one for guiding, one revolution in 720 hours or every 30 days. He found that the electric wiring and control systems had all been worked out with wondrous care, all sliding brush contacts avoided, and the whole system installed in a permanent yet easily accessible form, giving the maximum of convenience with the minimum of attention and repair. Every attachment known hitherto and quite a few added ones that will give convenience of operation, coupled with accuracy, were provided. Some idea of the ease with which the monster moves is conveyed by the fact that the actual increase of current required to move the telescope in quick motion over that needed to run the motors idle is barely suffi-

cient to light a 16 c. p. lamp. When the whole mass moved amounts to 45 tons' weight, some idea of the perfection of design and workmanship upon this wonderful instrument is easily grasped, and Galileo took it all in to the full.

Briefly, but without missing any detail, for now his time was growing short, the Shade of the first astronomer to wield a telescope, noted the mirror. It was a 73-inch one, 12 inches thick at the edge, with a hole 10 and 1/8th inch in diameter through the centre, the whole weighing 4,340 pounds. Galileo, too, looked upon the very necessary driving clock, and from what he had read concluded, and rightly, that it was very similar to the ones by which the Yerkes and Lick telescopes were operated. The clock, he saw, moved the telescope in right ascension by means of an accurately cut worm wheel, 9 feet in diameter, mounted on the polar axis by ball and ball thrust bearings, and clamped to it when required by an electric motor.

The whole of the things above described, a total weight of 55 tons, 45 of which were movable, was set upon a concrete pier. The surrounding circular steel building, whose walls serve to support the dome, and the dome itself, are entirely of steel construction, which allows them to assume rapidly the air temperature; and they are provided with double walls and a system of louvres at the top of the dome, ensuring a thorough circulation of the air and the maintenance of the interior at a shade temperature.

The great revolving dome itself weighs 120 tons, and, like the telescope, operates by electric power, and most as easily and smoothly as any play toy weighing but as many ounces. It is possessed of a double shutter, having an opening 15 feet wide, and wind shields, all of which also operate by electricity.

So, seeing all, and noting that in the eastern sky the rosy-cheeked boy of dawn was beginning his daily stirring, Galileo drew his mantle about him and flew across the housetops and on towards the dolorous odoured River Styx, that rolls forever blackly between earth and that unknown sea to which we mortals give the name of Death.

Canada has finished a great work, the largest telescope in the history of the world. From that high summit of that British Columbia Hill this mighty monster child of science sweeps the sky. And with such an aid, Dr. Plaskett, Chief Astronomer of the Dominion Observatory, whose research work among the stars is already of some note, and his assistants, living ever beside the great instrument and watching long and often through it, are sure to bring to light many new things in the field of stars. With such facilities for observing, analyzing and photographing even the faintest spectra, before not possible, Canada may yet lead the world in the manner of new scientific discoveries. Up at the end of the world Stefansson, the Canadian Arctic explorer, is discovering new worlds of earth beyond the last known sea; and now from the summit of Saanich Hill, Dr. Plaskett and the other students of the stars, the seers and savants of to-day, are beginning to take up the search for another kind of world. Both are great works that in the days to come are bound to bring the fair Dominion great renown among the nations of the earth, and, too, a proud place among these people possessed of so much older civilization.

And far across the waters of the Styx, Galileo, who first created telescope upon this earth, 352 odd years ago, sits perusing the latest astronomical report, and bitterly lamenting that his days were so numbered and arranged as to rob him of the joys the present century observers have as a daily menu.

NOW IS THE ACCEPTED TIME

THE supreme question of the moment is as to Germany's action in view of the emphatic rejection of her peace proposals.

It is true that the door has not been so entirely closed as absolutely to exclude all light. Indeed the Allied note may be said almost to ask for some definite statement of terms, and Germany can now make some further response without any loss of dignity. But will she do so? It is possible that she has already done so in the shape of some confidential communication to the neutral powers which they are to hold as confidential until they can extract something of a corresponding nature from the Allies. Indeed we may believe that Germany's chief difficulty is in this very matter of publicity. She is not willing that her own people shall know how far she is prepared to go until it has become almost a fait accompli. All the governments involved have, of course, given their people assurances of success that are, to say the least of it, inflated, but these assurances are more implicitly believed in Germany than elsewhere. Nowhere has the official bulletin such sanctity as in Germany, and therefore it is that the official assurances of an ultimate and complete triumph have now become something in the nature of a peril. A few months ago the retention of Belgium was an article of faith throughout Germany. At least there would be a commercial supremacy which would amount to the same thing. But the German mind has been gradually weaned from that belief. It has now accepted the certainty that Belgium and France must be evacuated. But what about the east? How much can be saved in the Balkans? And so now we have the cautious suggestion that Russian aspirations might be met by a sort of franchise for her ships at the port of Constantinople which would not exactly be possession, but which would be the next best thing and satisfying to all practical purposes. But how much further will Germany go in the way of concession? In her inmost heart, where has she drawn the line? At what point has she said "thus far and no farther"?

THAT, of course, depends upon how earnestly she wishes for peace. If she has reached the place where peace is absolutely essential to her, she will go much further than anything that she has yet avowed. Semi-official reports speak of the extraordinary "liberality" of her concessions. We may put all questions of liberality on one side as being

Germany's Psychological Opportunity to Get as Much as Possible Out of Peace Terms Depends Upon Her Eastern Success Where Success is Easy. Her Western Game is Played Out. All She Aims at Now is to Save All She Can

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ridiculous. All the governments involved will act up to the full measure of their opportunities and they will concede up to the full measures of their necessities. It is a question of opportunity and concession, and of nothing else. Germany made her proposals under the spur of necessity. We have only to ask ourselves how far that same necessity will yet take her.

And here we are somewhat in the dark because we do not know the exact nature of that necessity. There are three alternatives that may explain it, and we may adopt either or all of them. Germany's action may be due to nothing more than a realization that she has now reached the maximum of her power and that henceforth she must grow weaker while her enemies grow stronger. In that event she would be naturally anxious to make peace on the basis of the map and before that map can change to her disadvantage. The second alternative is the growing distress at home consequent upon a food shortage and the resulting demand for a termination to the war. The third alternative is a notification from Germany's allies that they can not hold out any longer and that they must speedily be driven to a separate peace. It is more than probable that all of these are factors in the present situation, and we may reasonably believe that the third is the most potent of them all. That the food problem in Germany is an acute one is undoubted. It must be so. Germany is not wholly self-supporting even in peace times. Her imports have now become insignificant, while the absence of mineral fertilizers must have made itself severely felt in the deterioration of her harvests. And if there is food distress in Germany we may be quite sure that it is far more severe in Austria and Turkey. That the conquest of Roumania has resulted in the seizure of any large amounts of foodstuffs is greatly to be doubted. There was plenty

of time to remove or destroy them, and we may be quite sure that they were not needlessly allowed to fall into enemy hands. Reports from Switzerland—always to be received with great caution—say that the new Emperor of Austria has set himself resolutely to work to obtain peace and that he has hopes of persuading the Italian government into some special arrangement between the two governments. Other reports say that he has notified Germany that Austrian resistance can be carried no further and that in the absence of a general peace he will be compelled to conclude a separate one.

Such reports, as has been said, must be received with suspicion, but at the same time they are likely to contain an indication of the facts. The young emperor has just come to the throne, and he can hardly view with equanimity the prospect that his empire will dissolve before his eyes. Nor is he likely to conceal from himself the fact that even a victory for the Central Powers would be in truth a hollow one for Austria, seeing that she has suffered far more than Germany and that she is now so debilitated that she could hardly expect more than the status of a vassal even under the most successful ending to the war. What, then, more likely than that the emperor should have resolved upon peace and that he should be anxious to inaugurate his reign by securing it. And if Austria should break away from her alliances we need not have any doubt as to its decisive effects upon the situation as a whole.

NOR must we forget that Germany could advance a long way in the direction of "liberality" and still emerge from the struggle with quite substantial gains. She might offer to restore the status quo ante in both east and west, to indemnify Belgium and perhaps Serbia, to give Italy all she asks (of Austrian territory), and to make some satisfactory arrangement with Russia with regard to Constantinople, while leaving such matters as the German colonies and Poland for arrangement at a peace conference. She might even make some sort of an offer with regard to Alsace-Lorraine. She could do all these things and still profit in an indirect but a very real way. For such an arrangement would leave her at the height of her military power and therefore dominant over her Allies, who would be broken and helpless. Germany would then have suzerain powers over Austria, Bulgaria, and Turkey, who would be unable to resist her will and who