THE TORONTO WORLD: SAUDINDAY MORNING, DROEMBER DE RS.

perfectly defined. Here, on the contrary, we see them standily as well-defined and have discs. So far we have not been able to see any of the markings which have been arbit to see any of the markings which have been reported to exist on these disks A more favorable opposition may allow us to go further in this direction also. The colipses of these satellites can be followed phase by phase likes an colipse of the moon. As the satellite enters the shadow of the planet one sees first the edge obscured, then OLD MARS IS ALL RIGHT. THE GRE IT PLANET SKEY THROUGH

THE LICK TELESCOPE.

Its Mountains and Canals-Venus, Jupiter Old sol, the Moon, Saturn and the Lat-

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EET

est Cometes An Interesting Astronomic cal Chapter. Professor Edward F. Holden, director of the Lick Observatory at Mount Hamilton, Oal. takes up a page of The New York Herald of Wednesday in giving the results of the sca-son's observations through the tamous tele-son's observations through the tamous tele-son's observations through the tamous tele-son a sone day lead to a solution of the different layers of the globe. Certainly nuch remans to be done in this direction. scope. Considerable interest has been attached to the result of these observations. Prof. Holden illustrates his sky-searches solar system as the planet Saturn, with his eight satellities and his magnificent ring syst Prof. in The Herald. He gives, in addition to the maps of Mars by Kaiser, Harkness, tem. On every suitable occasion during the past month he has been carefully examined Schiaparelli, Green and Lohse, a map of his own "as seen through the great telescope." from 3 o'clock in the morning (a beautiful hour

own "as seen through the great telescope." Prof. Holden's observations of the new features of Mars will be of much interest to astronomera. His letter to The Herald is under date of Nov. 21, and in the introduction he says. The Observer's Paradise. "The end of the astronomical season at the Lick Observatory is fast approaching. The Saturn. The dusky interior ring, for the satures, even with a bright object like Saturn. The dusky interior ring, for example, and the complex ishadings on the rings are far better seen here than elsewhere.

Ben. S. Collins, Esq., is a richer man by about \$15,000 than he was some two weeks since, and

telescope were used in the discovery of the two councts which were first seen here on Sept. 2, and on Oct, 31. "But the general idea is the correct one notwichstanding. The whole instruments equinment of the observatory was chosen so table cost part is auxiliary to the great telescope, just as the cutlasses and Galiar telescope, just as the cutlasses and Galiar telescope. Just as the cutlasses of the substance. Nothing more was heard from the mailer until Thureday morning. The provisions of Mr. Lick's deed in this respect powerful telescope in the world." In nearly we have repeated and striking instances of its soperiority over other instruments, no matter how perfect of how large they may be." The professor then goes on to give a sketch of his labora, the most important pars of which follow : Old Sol, Venus and Luna. No observations of the sun have been made with the large telescope for far of the effect of the sunlight in changing the transparency

what the farge telescope for fear of the effect of the sunlight in changing the transparency of the glass of which the objective is composed. With the six inch telescope, however, a com-stant watch has been kept on the solar disk by one of the students of the observatory for the detection of large or remarkable spots. Elab-orate preparations have been made also pre-



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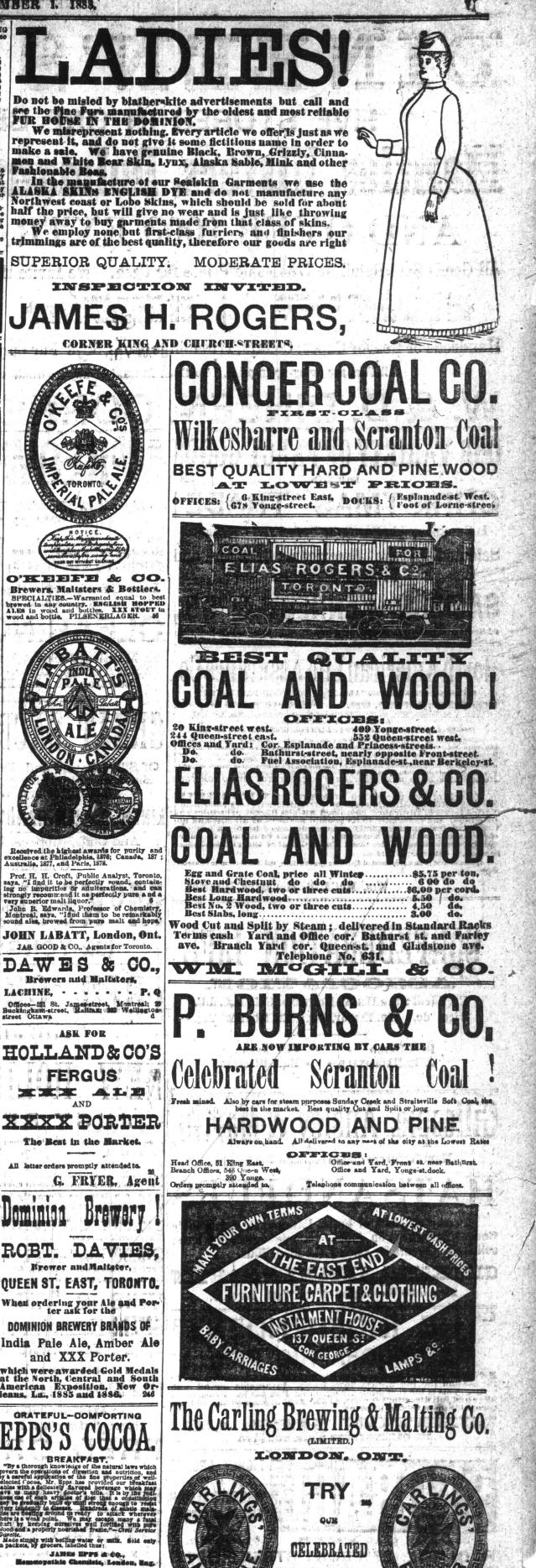
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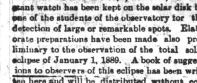
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did photographs were obtained on the follow-ing dates: Aug. 12, 13, 14, 15, 16, 17, 18, 20, It is safe to say that no photographs of the advanced that Bickle's Auti-Consumption so far in of giverefield. For coughs, colds and all affoc-tions of the throat, lungs and chest, it is a spe-world where so many satisfactory pictures world have been s cured in a single lunation. All: tout Mars, It is in the memory of all that the scientific

All: About Mars, It is in the memory of all that the scientific and unscientific press has been full of accounts of discoveries on the planet Mars. Discoveries there have been during the past decade, and important ones, but before I give ny account of these I wish to convey if I can any account of these I wish to convey, if I can. some accurate notion of what it is we are observing and what we may expect to see.

obsorving and what we may expect to see. Under the most favorable or constances the planet Mars presents a disk of about thirty seconds. This is about the angle that a foot rule would subtend if it were viewed at a distance of one and one-quarter niles. Such are the conditions under which we have to view the planet. During our observations in 1888 the disk was never more than ten seconds. Now, when the disk of the planet is exam-ined we see on it various markings, which ined we see on it various markings, which have been called land and water. The pre-vailing color of the disk is a brilliant salmon vailing color of the disk is a brilliant salmon red, and features of this color have been called land. The various "continents," etc., are separated by darker portions, and these have been called seas and straits. The edges of the planet are viewed obliquely and show few markings. These are lost in the prevail-ing lemon yellow tinf, which goes nearly fround the border. At the poles of the planet are brilliant white caps, which are reasonably fammosed to be the anowy regions. They was

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The behavior of the water, which are reasonably supposed to be the snowy regions. They wax with increasing cold; they wane with the ap-proach of the Martial summer. If there are snow and ice on Mars, as the observation just cited seems to show, then there must be water. The spectrum of Mars, too, proves that watery vapor exists in its attoo, proves that where values at the sate of the state of the set ring the next few years.

Now, this planet, with its markings, turns on its axis in twenty-four hours and thirty-even minutes, and presents us diff rent faces at different times. Astronomers have patientdrawn the various aspects at various times. and from the drawings made have constructed maps of the whole surface, just as maps of the earth are constructed.

By Jupiter! During the summer of 1888 Jupiter was very unfavorably situated for observation on account of its extremely low altitude. It was carefully tollowed, however, and

many suggestions for future work were de- A Dress Dyed A Coat Colored rived from the examinations which it was poswible to make. Garments Renewed) CENTS.

, The phenomena attending the transits and aclipses of the satellites were highly interesting in particular, and certainly descrie further study under more favorable conditions. These satellites usually appear as bright points in the telescope, not stellar in character, but wish a disk which is not always steady and

Rings of Old Saturn. There is nothing so interesting in the whole

The sum goal in changing and which he objectively is composed. With the six inclusion of the standards of the standards of the objectively included with the six inclusion of the standards of the objectively included with the six inclusion of the standards of the objectively included with the six included with six incl

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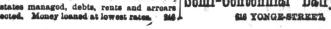
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