

rare and valuable books, and is thus fully fitted to compete in work with any of the European institutions. Considering the bleak northern skies through which it seeks to penetrate the mysteries of space, its contributions to science are of solid value, though startling discoveries do not often emanate from that distant shrine.

The close rivalry to the Pulkowa instrument is the more recently erected 29.9-inch refractor of Nice.

The gift to science of M. Bischoffsheim, a wealthy banker of Paris, it has the advantage of many previous experiments, of an altitude of 11,000 feet and of a genial sky. It must be admitted, however, that the mists of the Mediterranean hovering over Mount Gros, on the once barren summit on which it has been erected, interfere seriously with the good definition of observed objects. The still further discouraging news also comes that it is the experience of M. Perrotin, the director that two hours' work with a large instrument is as fatiguing as eight with a small one, the labour increasing in proportion to the cube of the aperture, the chances of seeing decreasing in the same ratio, while the gain in enlarged views rarely keeps pace with the disadvantages.

To avoid the impediment of a frozen surface on the water, a small quantity of the glycerine of commerce can be added, or the tank can be slightly heated with gas-jets underneath.

At full speed the dome sails round its restricted channel in eight minutes, and for moderate speed the attached rope needs only the effort of one hand. The unique mechanical conception has been found to work with entire satisfaction. Machinery resembling that by which the Lick dome rolls round so smoothly and swiftly has also been provided at Nice to forestall any failure in the design of M. F. Eiffel, who was the constructor.

The cost of the construction of such a dome is estimated to be \$40,000.

A 15-inch refractor, an excellent meridian circle, a portable transit instrument and all the usual accessories of a first-class modern observatory are to be found in this scientific institution, which has been fitted up at the cost of \$300,000.

The measurement of double and multiple stars and a search for new satellites moving around the major planets have been part of the work of the great telescope, but in the latter respect at least it has looked in vain.

When the observatory of the University of Vienna was built on a slight elevation above the Danube the advantage of a high altitude had to be overlooked and a clear region within easy reach of the city was all that was attained. It was completed in 1880 and the refractor, twenty-seven inches in diameter, was looked on as a colossal achievement, surpassing in size even the twenty-six inch refractor of Washington, then in use for some years.

Being entirely constructed by one firm, that of Sir Howard Grubb of Dublin, it was certainly a marvel of versatility in mechanical skill, and many of the methods adopted have not been superseded, though new requirements have given them a new and more perfected form. This is more to be wondered at, as some of them, though well-designed, were untried experiments.

The illumination of parts of the instrument at a distance from the observer by one lamp was arranged by several refracting prisms, which scattered the light in the angles required till the object could be distinctly seen by the means of microscopes near the eyepiece.

### THE BATTLE OF THE BUCKLES.

THE Pope has issued a propaganda concerning the absurd dress that adorned the feminine head some generations ago. A French law was recently enacted regarding corsets. In Chancery's time the English authorities took steps to prevent the extravagant wearing of gawgaws, and we all know the nature of the famed Connecticut blue laws. Even as far back as the days of Paul the preacher, it was demanded that women's heads remain covered in public places, especially in church, but probably the most unique law ever enforced regarding feminine apparel related to buckles. It is the more interesting to air this bit of antique legality in view of the present astounding popularity of the offending article of jewellery.

Here is the story: Strife was bitter against Athens and Aegæa. War, or rather a series of petty fights, was the accepted attitude. In one such engagement the Athenians were triumphant. A small body of the soldiers marched into the little town of Aegæa, to be met by an infuriated mob of women, both matrons and maids. These members of the gentler sex unclasped the girdles from about their tunics and belaboured the incoming militia with their metal buckles, demanding as they did so the lives of brothers, husbands, and sons. The soldiers hesitated to return the attack; but resistance of some sort was necessary, as the encounter was rapidly assuming proportions of a serious affray. So they fled down the streets into open arches and cellarways, relentlessly pursued by the enraged women, who used their long winding sashes as lassoes, and pitilessly

struck the flying enemy with the dangerous gold and silver ornaments. The soldiers were lashed and cut wherever an inch of flesh was unprotected and presented itself as a target for the markswomen. Finally exhausted, the Grecian Amazons desisted, but not before the 'buckle fray' had become so serious an affair that it became one of the sensations of the day.

A hearing of the case was had before the judges. The women pleaded that all was fair in love and war, but the jury and men in general determined to take such convenient weapons out of feminine possession. Probably they were not only amazed, but alarmed at the ferocity of these female warriors, and resorted to the cloak of law in order to shield themselves from the possible equality of rivalry. At all events, a verdict was rendered forbidding Aegæan women henceforth forever to use buckles as part of their attire. Their gowns should be fashioned, the judges decreed, in such a manner that these heretofore necessary ornaments would be omitted from the calculation. It was the bitterest judgment that could be passed on these beautiful women. It proclaimed to the world their unwomanliness, and held them up as examples at whom other women might point the finger of scorn. And they did, for the Athenian women induced the gold and silversmiths to mould the buckles of finer make than ever. These they wore with great pomp and pride to triumph over their male relatives' opponents.

### THE REAL TOM SAWYER.

NOW LIVING IN THIS CITY AND DOING BUSINESS ON MISSION STREET.

KIPLING had his Mulvaney and Haggard had his Quartermain. Both of these characters existed and performed the feats and did the things which their immortalizers gave them credit for.

Mark Twain had his Tom Sawyer, but Tom, the real Tom, did nothing but meet Mark when he was about 30 years old.

That Tom Sawyer, from which Mark Twain's book derives its name, is at present in this city and has lived here for a good many years. His boyhood days were not mingled with those of the writer, neither did he go to school with the humourist. The reason Twain called his book 'Tom Sawyer' was because he was fond of the individual by that name, who keeps a small



TOM SAWYER.

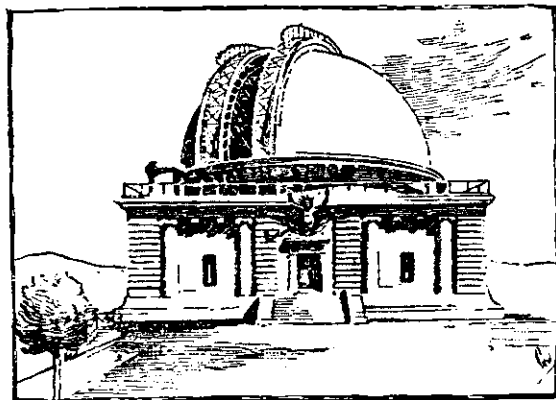
saloon at 935, Mission-street, and decorates his walls with photographs and prints of veteran firemen and old election tickets. Just how it all occurred is best told by Tom himself:

'Me and Jack Mannix, who was afterwards bailiff in Judge Levy's court, was walkin' down Montgomery-street. We drifted into the capital saloon, where the Mills building now stands, and Mark caught sight of us from a window across the street in the Russ House. Well, as soon as he seen us he came down and we all went in and had a few jolts together. The result was, to be plain with you, we got full. Mark was as much sprung as I was, and in a short time we owned the city, cobblestones and all. Towards mornin' Mark sobered up a bit and we all got to tellin' yarns. I dished up a few, Mark dished up a few, but Mannix was speechless.

'The next day I met Mark down by the old CALL office. He walks up to me and puts both hands on my shoulders. "Tom," he says, "I'm goin' to write a book about a boy, and the kind I have in mind was just about the toughest boy in the world. Tom, he was just such a boy as you must have been. I believe I'll call the book "Tom Sawyer." How many copies will you take, Tom, half cash?'

'That's the way it came about, and you can bet when Mark shows up here next August he'll bear me out. Have a drink.'

Sawyer is now about sixty-six years of age, and speaks of Twain with that feeling which signifies the inviolable bond between the old-timers and their comrades.



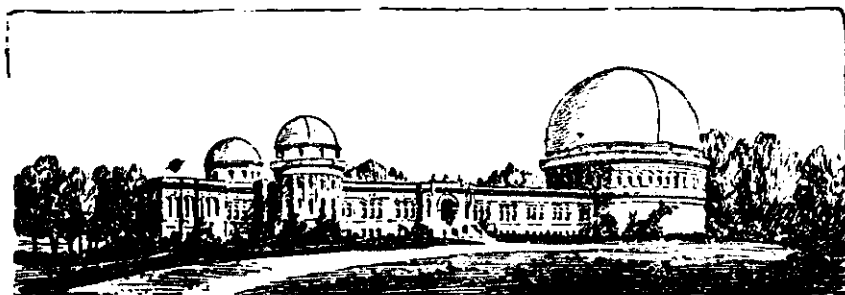
THE OBSERVATORY AT NICE.  
(From a sketch.)

He is admirably true to science in thus putting the outcome of the expenditure in the light in which it has appeared to him. In the extensive enclosure on the mountain top the buildings are unconnected, which may be inconvenient to the astronomers, but it is an advantage in the use of the smaller instruments which are free from draughts and obstructing higher domes.

A peculiar feature is the method of revolving the large dome, which is nearly similar to that of the Lick telescope in dimensions and weight. Lieutenant Winterhalter, U.S.N., who was officially deputed to inspect the leading astronomical institutions of Europe in 1887, describes the contrivance by which the dome floats round in a ring-shaped tank of water in the following words:

'The weight of the dome is taken up by means of a circular float attached to and making a circuit of its base and resting in tanks of the same shape, partly filled with water. The dimensions of the float are, of course, calculated to give the buoyancy necessary to float the dome, which weighs about ninety-six tons. The depth and width of the tank are necessarily somewhat greater than the corresponding dimensions of the float. They are calculated to be somewhat more than sufficient for the use of water, a liquid of the least density that is likely to be employed as a floating medium. About half of the tank projects beyond the line of the masonry and is there supported by heavy cast-iron standards turning up into hanging knees and by intermediate angle-iron.

'The dome thus becomes a hemispherical vessel floating and turning in a circular basin.'



YERKES OBSERVATORY.

(From an engraving by 'The Call's' Art Department.)