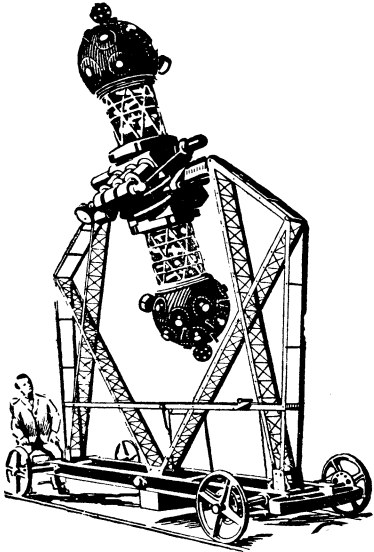


Artificial Stars

By JAMES STOKLEY



Imagine a very clear night sky—the sort of a sky that one sees from a high mountain, far from the lights and dust of a city. Unlike the night sky ordinarily seen by city dwellers, the Milky Way can be seen down to the horizon and thousands of stars gaze down on the observer. And as imagination can have full reign, imagine that by some divinely conferred power, this sky can be altered at the will of the observer. It can be made to appear as the sky would be seen from any part of the earth, from the north pole to the south, or as it has appeared thousands of years ago, or will appear in the distant future.

Of course, such things cannot be done with the real sky, but precisely the same effect can be obtained with a wonderful new instrument that has been installed in a number of European cities. A few years ago travellers returning from Germany told of this instrument—the planetarium—which was on exhibit in the great Science Museum of Munich. Since then a dozen German cities, including Berlin, Hamburg and Düsseldorf, have installed them as educational exhibits; Vienna has also obtained one, while others have been ordered for Rome and for Moscow.

The instrument, which is the result of the ingenuity of Dr. W. Bauersfeld, one of the engineers at the Carl Zeiss Optical Works at Jena, is a glorified stereopticon, or magic lantern. It is set up in the center of a 90-foot dome lined with white cloth. A battery of over a hundred lenses projects the images of the stars on the dome. These lenses are located around the two large bulbs at each end of the

instrument, as shown in the illustration. Motors provide for turning the instrument to simulate the effect of the earth's rotation, while other motors turn it another way, so as to bring into position the stars seen from other latitudes. In the cylindrical part of the machine are projectors for the sun, the moon, and the five naked eye planets. An extremely accurate mechanism moves these planet projectors so that their images on the dome closely duplicate the motions of their celestial prototypes. But motions which take years to be completed in the heavens, can be run through in a few minutes with the planetarium, thereby explaining their motion far better than could thousands of words of lecturing.

When the first planetarium will be installed in the United States is problematical, but it will probably be in the near future. Though the complete installation in America would cost something like \$200,000, including the building, as an educational exhibit it is unequalled. And in Germany, where small admission fees are charged, they have gone far towards paying for themselves. Doubtless the same could be done in the United States.

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AGRICULTURE

Social Self-Preservation

Quotation from *THE HARVEST*—Liberty Hyde Bailey—Macmillan.

Even as a commercial question, we cannot avoid the necessity of keeping the farmer an enthusiastic producer, if we look any distance into the future. I have not been able to alarm myself over the supposed approaching calamities due to overpopulation of the earth; but if Malthusianism holds (as taught by the new school) then the obligation to increase production is commanding and inescapable and it becomes the major agricultural problem.

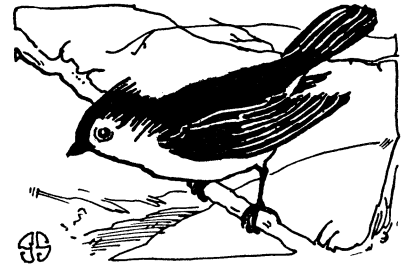
Along with this necessity, we must make it more and more unpopular for all kinds of exploiters to skin the earth. We must save the natural produce and safeguard it, protect the streams and the lands, curb land-grabbers, avoid wanton waste of fertility and materials, the locking up of areas and resources for personal greed, and discourage all breeds of piracy. In those days there will be few pirates but many poets.

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Fishes sometimes get sea-sick from train travel.

NATURE RAMBLINGS

By FRANK THONE



Tufted Titmouse

Go into some patch of open hardwood timber where the snow still lies under the partial shadow of the trees. Walk quietly and don't talk too much. It's likely you'll hear him first: "Pe-to! Pe-to! Pe-to!" loudly and without fear, like a bluejay. Some call him "Peter-bird" because of that call.

Presently you'll see him, or perhaps a pair or even a little flock, playing about alone or mingled with chickadees, waxwings or woodpeckers. Tufted titmice, or tomtits, are sociable birds, and will make friends with anything in feathers that does not try to bully them. When anything happens that excites them or makes them a trifle suspicious, they sound a second call: "De-de-de-de-de." The "Pe-to" note is their song.

The tomtit is a trim and attractive looking chap. His figure is quite similar to that of his cousin the cedar waxwing, except that it is considerably smaller. Like the waxwing, he has a crest, and again like the waxwing he shares with his mate the privilege of this ornament. There is no need to confuse the two relatives, however. Not only is the tomtit smaller than the waxwing, he isn't nearly so elegant in the matter of clothes. The black eye-bars, and especially the sophisticated bits of yellow trimming on wing and tail-edge, that distinguish the waxwing, are lacking in the tomtit. Not that he's dowdy or shabby. Far from it. While his coat is a slatier, soberer affair than the waxwing's garment, with its exquisite nuances of brown, the tomtit shows you he's no Quaker by a dash of red—but not so wide nor so bright as to be ungentle—across his lower breast and belly. Taken all round, a most bright and attractive chap to have on one's calling list.

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