

ASTRONOMY AND MAN

by

MORTON S. SILBERSTEIN

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TAU BETA PI

Maryland Beta Chapter  
University of Maryland  
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## ASTRONOMY AND MAN -- SUMMARY

Astronomy, the most comprehensive and also the oldest of sciences, has been investigated by modern science to the point where now a great deal is known of the universe about us. However, most people of today know less of the actual heavens than did the ancient Arabs of two thousand years ago.

The greatest value of astronomy is cultural. It makes man realize his insignificant place in the universe, and stimulates his mind to find out as much as he can of the astronomical bodies and systems of bodies, and makes him ponder over the origin and extent of the cosmos. The practical applications of astronomy receive less attention than the aesthetic.

As a hobby, astronomy affords a great source of pleasure. One may satisfy himself as to the existence of the various heavenly bodies by observing them, and can test the practical methods in which astronomical observations are used. I was highly pleased when on my first attempt I correctly computed the time from observations on the stars.

As a life's work, there are unlimited fields for research in astronomy, for man will probably never gain a knowledge of the entire universe.

## ASTRONOMY AND MAN

Astronomy is the most comprehensive of sciences; it deals with the space, time, and matter of the entire universe, down to, but not including, that which occurs on the face of the earth itself. It is also the oldest of sciences; the ancient desert peoples had ample opportunity to study the configurations and motions of the stellar bodies. With the aid of modern scientific instruments and methods, our astronomers have given the world a knowledge extending far into the depths of the surrounding universe. Yet there are too many people today who know little or nothing of the science of astronomy as developed in modern times, or even of that part of astronomy which has always been available for study--the mere observation of the heavenly bodies. It is probable that the ancient nomadic Arabs of two thousand years ago knew more of the existence and motions of the heavenly bodies than ninety per cent of the college graduates of our country today.

What, then, is the value of astronomy, if so many people are able to subsist comfortably without any cognizance of the subject? The truth is that measured in monetary units, an understanding of the principles of this science would have little or no value to the average person. It is culturally that astronomy has its greatest worth; as a stimulus to the mind of man, and as a means of bringing him to a realization of his place with respect to the space about him. Contrary to the thoughts of the most ancient philosophers, astronomy shows man today that he, and the entire world he lives on, are incredulously insignificant parts of the universe

he has begun to study. Instead of being the dominating influence in the universe, man finds that he in reality is only a tiny speck, on a tiny spinning globe, one of many like it revolving about a larger, luminous body, the sun; the sun in turn is only a small example of millions of similar stars, together comprising a system, or galaxy, which is yet only one element of a still greater super-galaxy; of these super-galaxies there are an undetermined number in the metagalaxy, a super-system which together with the cosmo-plasma, the space and matter that fills in between the orderly systems (for all of the forementioned systems are orderly in that they are governed throughout in their motions by physical law), forms what we speak of as the universe. Astronomy is the greatest stimulus to the mind, to instil in it the desire to know more and more of the details of each successively more remote body or system of bodies; to know what comes beyond the outermost that is now known; and even further, to solve the greatest of all problems, cosmogony--the origin and evolution of the material universe.

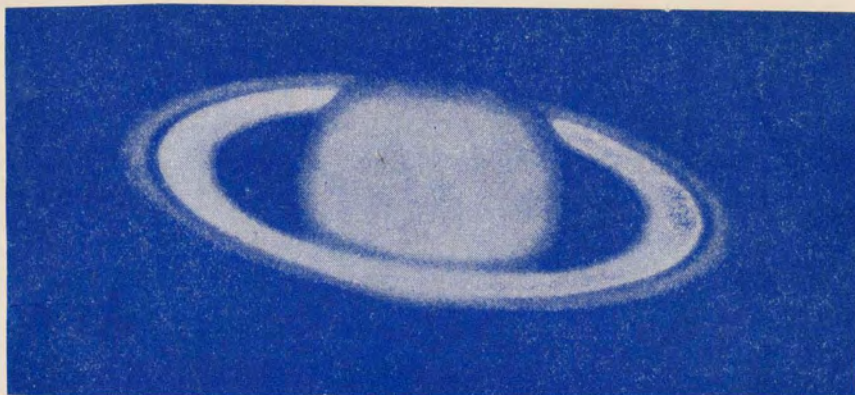
Astronomy also has its practical values--determination of time, navigation, prediction of tides, and so forth--but these are of minor import when compared with the intellectual value of the science, and the desire for learning which it infuses in the mind. The great expenditure of time, effort, and money on research in the great astronomical observatories is a verification of this statement, for the new discoveries made add to man's store of knowledge, but not necessarily to his practical application of it.

If one takes up astronomy as a hobby, he can satisfy his intellectual curiosity as to the existence and appearance of many of the bodies in the universe. With the naked eye or with field glasses, he can study the constellations and motions of the heavens, and with only a moderate size telescope he is able to find examples of practically every representative object for observation. A few of these, as seen through a telescope, are illustrated in the accompanying photographs. Those illustrated are only a few of the many wonders waiting for the amateur's eye.

Interest and gratification also are in store for the amateur who tries his luck at the practical side of astronomy as well. Recently, during my college course in astronomy, I borrowed from the instructor a small telescope, with equatorial mounting and graduated circles, of about the same size and power as a surveyor's transit. With this instrument, I took readings on a star, with the purpose of computing the time. It was about a half-hour later that I came in to make my computations, but when I finally arrived at the exact time, measured to the minute, that I recorded at the time of observation, I felt as if I had really accomplished something of great importance. Of course, there are many other ways in which even the novice can try his hand at practical astronomy.

To move now to the more serious aspect of the science--research in astronomy as a life work--I believe it is now apparent that there are boundless fields for new discovery; there is always

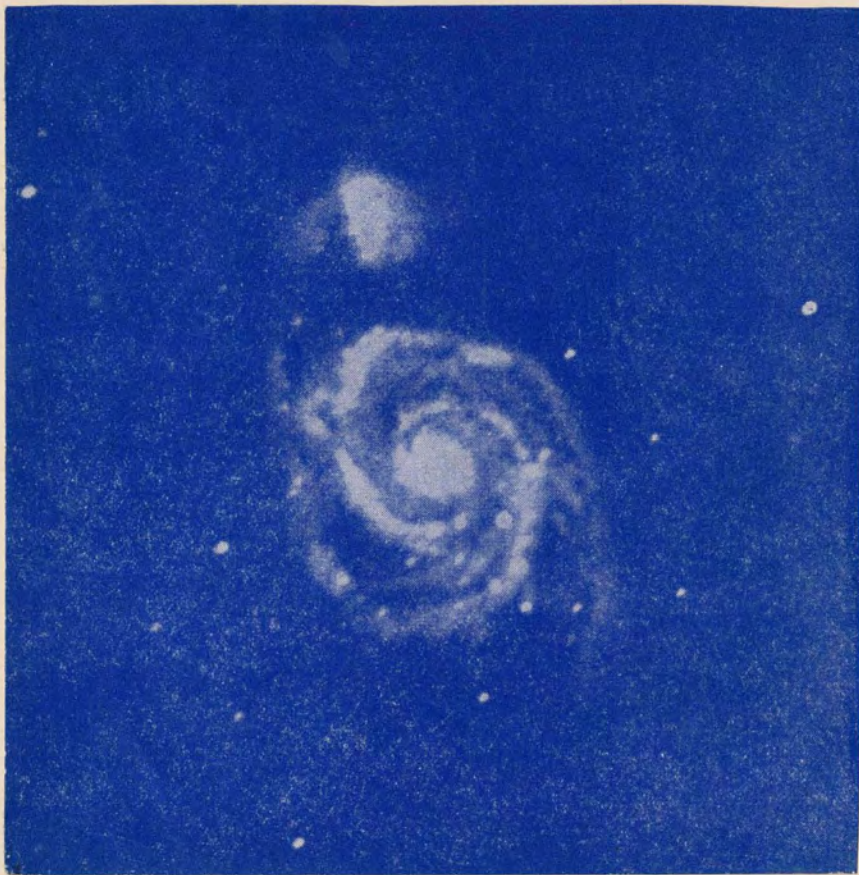
more beyond the most remote things known; for, although mathematicians and physicists say now that the universe is finite, it is extremely doubtful that man will ever gain a knowledge of its entirety.



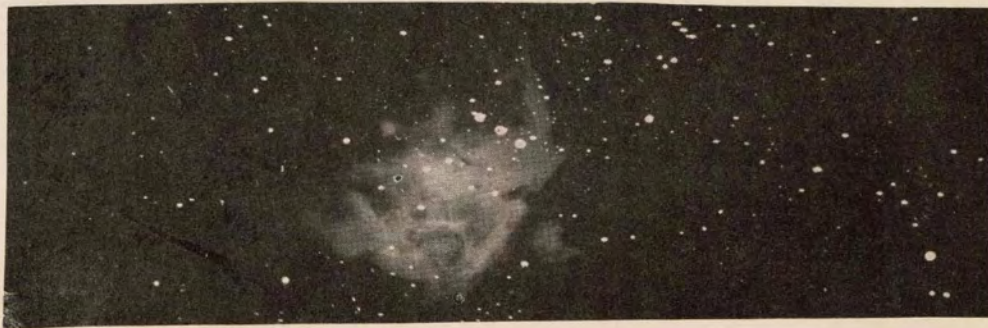
Planet -- Saturn, with Rings



Moon at First Quarter, Showing  
"Seas" and Craters



Spiral Nebula



Diffuse Nebula



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