

Researchers look to the stars for answer

Scientists say twinkling lights could run out

By CAL PIERCE
Of the Emerald

No one knows how old the universe is. But when the rain stops and the lights of Eugene don't get in the way, you can look up and see some very old things, indeed—the stars.

Those shining lights have spent millions of years doing what they still do today. But astronomers think that some of them are much older than others, and some may be being born at this very moment.

Speaking at the University Thursday afternoon, Dr. Robert Zappala, of the University of California at Long Beach, explained some of the theories astronomers have about the birth of stars. Zappala used slides showing the Orion nebula, which is composed of clouds, of dust and gas. Inside such clouds, he said, young stars may currently be emerging out of the material.

According to Zappala, astronomers have identified a certain type of star that may be in the earliest stages of star formation. Called T Tauri stars, they are often spotted near thick dust nebulas. Most of the dust and gas was present at the beginning of the universe, billions of years ago, explained Zappala.

"Given time, huge pockets of this material may condense into protostars," he said. "Gravitation pulls the cloud into a smaller and smaller volume. As the density increases, the temperature goes up, until nuclear fusion begins to occur."

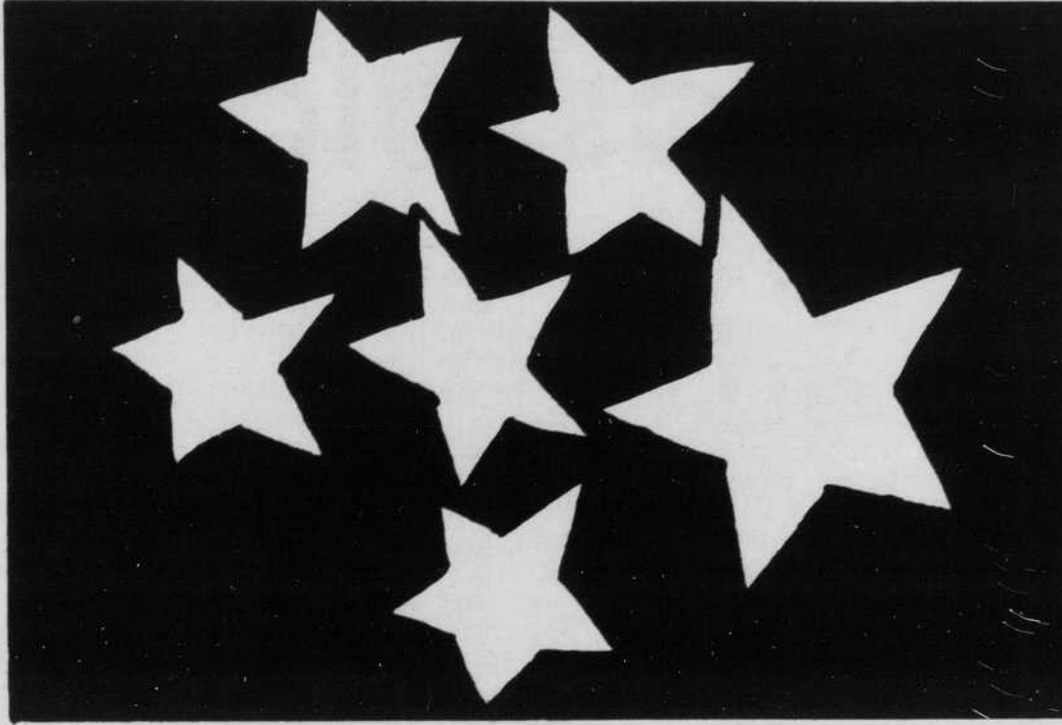
Zappala pointed out that T Tauri stars can be found in many nebulas like Orion,

and they are very dim, too dim for the naked eye to see. These reddish stars seem to be roughly the same size as the sun, but the light they emit makes them likely candidates for infant stars. Zappala explained that physicists have developed complex mathematical models about how stars begin, and T Tauri stars are thought to be in a stage of stellar evolution that may last for 10 million years. After that time, said Zappala, young stars begin their "middle age," which probably lasts for billions of years.

Zappala noted that stars are continuously dying. "Hydrogen-helium fusion eventually depletes the energy store of a star," he said. "The time scale of significant hydrogen exhaustion is about 10 billion years for a star the size of our sun. Some hot, bright stars may last for as little as 500,000 years."

Since some stars live such short lives, said Zappala, it makes sense that new stars must have formed relatively recently in the multi-billion-year history of the universe. But, he added, this will not continue forever.

"There's a limited supply of raw material available in the universe, since the total amount of matter and energy is constant. So sooner or later it will run out, and new stars will no longer form."



Eugene parks program proffers quality classes

Chances are University students won't find a candle-making class or a magic workshop in next winter's class schedule, but anyone who finds these ideas appealing may register for them at the Eugene Parks and Recreation Department.

The Parks and Recreation Department is offering scores of classes this winter, ranging from small appliance repair to woodworking. Registration is already underway, but many classes are still open.

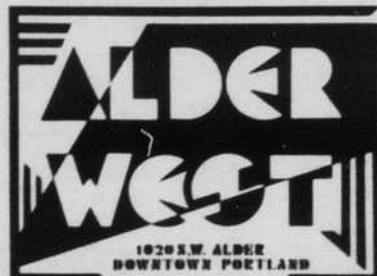
The classes are held at five community centers around Eugene. Anyone in the community may register for classes and activities at the Amazon Village Community Center, the Celeste Campbell Senior

Community Center, the Sheldon Meadow Community Center, the Trude Kaufman Senior Community Center, the Westmoreland Community Center and at the Bethel Community Schools.

Classes are offered for adults, teenagers, senior citizens, handicapped persons, children and people who would rather not be categorized.

The Parks and Recreation Department has a complete catalogue of the courses, which includes a map of Eugene city parks, a schedule listing swimming pool hours and a list of outdoor and environmental programs.

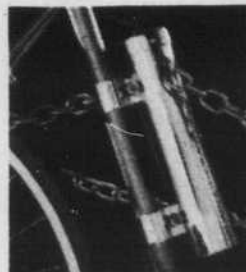
Information about classes or the catalogue can be obtained at Room 105 of City Hall or by calling 687-5310.



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