

# IN SCIENCE FIELDS

## ASTRONOMY

## Our Galaxy of Stars Has Thin Halo Around It

**T**HE GALAXY of stars containing the earth and the sun, often thought of as a flat disk in space, is not as thin as it may seem.

It would take light at least 100,000 years to cross the galaxy at its thickest part even though light travels at approximately 186,000 miles a second, said Dr. Harlow Shapley, director of Harvard College Observatory, at the meeting of the American Association of Variable Star Observers, held at Brown University's Ladd Observatory.

A survey of 2,300 Cepheid variable stars of the cluster type, having periods of less than a day, made possible the new estimate of the shape of the galaxy.

Our galaxy actually is surrounded by a thinly-populated spherical aura or halo of stars, Dr. Shapley added. In this it resembles the Andromeda nebula, one of the nearest of the spiral nebulae.

The advantage of the device is that it substitutes reading one simple instrument for following a number of more complicated devices.

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## GENERAL SCIENCE

## Our Immortality Is Thought's Effect Upon Our Environment

**I**MMORTALITY has been a philosophical hope through the ages and a promise of almost all religions. It may be said that scientists in general are skeptical of the idea of personal survival after death. There has been a very understandable diffidence among scientists about expressing opinions too urgently about this matter.

As the climax to her informative book about the human organism and its relation to the universe, "Fearfully and Wonderfully Made," (Macmillan) Dr. Renée von Eulenburg-Wiener defines what might be called scientific immortality. Here it is, quoted:

"The physical system of man attains its final equilibrium in death and no longer functions as a means of energy

exchange and transmutation. Yet, man must be considered part of the whole. As such, he is immortal; not in his physical individuality, nor in his dynamic psychic individuality, but in the effect of his dynamic striving toward full development.

"Human life, like all life considered in terms of energy, is but an expression of the universe. The activities of life, physiologic as well as mental and psychic events, depend in part upon environment and in turn leave their imprints on the environmental field. The physical evolution of man may be said to have reached its goal, at least, in general outline. The directing factors for physical development are given at the time of fertilization. They are practically immutable in comparison with the possibilities for mental development. For that reason one finds far more striking differences in mentality, that is, in the psyche of men, than in their bodies.

"Man can evaluate neither the phenomenon of consciousness nor its effect on the environmental field. Yet it is conceivable that thought processes affect the body's bio-electric field and so leave their ghostly footprints in the environmental field. In that sense, in the effect of the dynamic striving toward a more perfect adaptation to the whole, in the further development of consciousness and personality seems to lie not only the purpose of the individual life but also its immortality."

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## PHYSICS

## Quartz Crystal Vibrates 20,000,000 Times a Second

**A** TINY piece of quartz crystal has just been shaped and fashioned which is destined to spend its working life vibrating 20,000,000 times a second. It will be part of a new radio frequency oscillator being built by the General Electric Company.

The constancy of vibration of quartz crystals is used by broadcasting stations to maintain, virtually without fluctuation, the assigned radio wavelengths on which they transmit.

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## METALLURGY

## New Copper Alloy Is Strong and Hard as Steel

**A** NEW copper alloy consisting of nearly pure copper and having the strength and hardness of steel, is announced by the Westinghouse Electric and Manufacturing Company.

Containing small amounts of silver and chromium, "Cupaloy," as it is called, has been laboratory-tested to determine its hardness. An engraved insignia on a sample of the metal made a deep impression in a block of steel against which it was pressed by a hydraulic press; the copper alloy was scarcely marked.

P. H. Brace, consulting metallurgist of the Westinghouse research laboratories, five years ago initiated the experiments which have culminated in the practical application of the alloy as welding electrodes, slip rings for generator rotors, cylinder heads in internal combustion engines and for other uses.

Special heat treatments which make the atoms in the alloy re-assort themselves are the key to manufacture of the substance. The alloy has a high electrical conductivity.

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## ZOOLOGY

## Burma Expedition Seeks Rare Black Barking Deer

**T**HE Black Barking Deer, an animal so rare that it has been seen only once by roving explorers, will be sought by the Vernay-Cutting Expedition to North Burma. If the American Museum of Natural History, sponsor of the expedition, acquires one of these deer, it will have the only skin or skeleton of the kind in any world museum.

The Burmese Government has granted permission, through the State Department at Washington, for the expedition to proceed with its plans. The objective is to collect mammals, birds, fish, and plants in a region of northeast Burma never entered by a scientific expedition. The explorers will start on their journey in the autumn.

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