

gasoline in Pennsylvania causes the motorist to use 12 gallons less gas in a year, they found. In Kansas a one cent increase causes a decrease of only three gallons. An added mile of good highway increases gas consumption twice as much in Virginia as in Mississippi.

Psychological factors play a part, they reported. In 1926, Virginia increased its gasoline tax by one and one half cents. The decrease in gas consumption which followed was twice as great as that following a one and a half cent increase in gasoline price. This same tendency was noted, to greater or less degree, in all the states studied.

Consumption of gasoline is influenced not only by prices and taxes, but by such factors as road building, fluctuations in purchasing power and registration fees. The net effect of influencing factors is expressed by the mathematicians in the formula which they call "the demand law for gasoline."

"This formula enables us to tell within two per cent. the annual consumption of gasoline per motor vehicle, if we know price, highway mileage, and the other factors involved," the report stated. "It can be used to determine the desirability of proposed changes in any of these factors, so far as they relate to gasoline consumption."

*Science News Letter, January 6, 1934*

## ASTRONOMY

# Super-Hurricanes Found In Atmospheres of Distant Stars

## Atmospheric Velocity of About 40 Miles per Second Revealed on Faint Star, But Sun's Wind Speed is Zero

**G**REAT WINDS blow in the atmospheres of the distant stars compared with which the hurricanes of the earth's atmosphere are mere zephyrs.

Dr. Otto Struve and Dr. C. T. Elvey, of Yerkes Observatory of the University of Chicago, announced to the American Association for the Advancement of Science that while the outer gaseous atmospheres which surround the luminous lower strata of the stars have heretofore been assumed to be relatively quiescent, they have discovered in the rainbow spectra of stars evidence that powerful turbulent currents exist in the atmospheres of many stars.

Spectroscopic phenomena that have puzzled astronomers for years are now explained, and Drs. Struve and Elvey even measure the most frequent wind velocity of individual stars. The faint star known as 17 Leporis has an atmo-

spheric velocity of about forty miles per second. In epsilon aurigae it is twelve miles per second, and in the first magnitude bright star Alpha Persei it is about four miles per second.

In the sun, which is a star, there is practically zero wind velocity, however. The winds in the stars may be likened to the winds on earth although the densities of stellar atmospheres are much lower than the density of earthly air.

### May "See" Invisible Stars

Astronomy seems to be on the verge of being able to "see" the invisible star light, both longer and shorter in wavelength than visible light from the stars, that can not now be satisfactorily studied by conventional telescopes and mirrors, Dr. Paul W. Merrill, of the Carnegie Institution's Mt. Wilson Observatory, told the astronomers.

Photoelectric cells, new photographic emulsions, and thermocouples, bolometers and radiometers, devices for measuring feeble temperature differences, are being improved to such an extent that astronomers should in the near future be able to extend their present fragmentary knowledge of the distribution of energy in the stellar spectra.

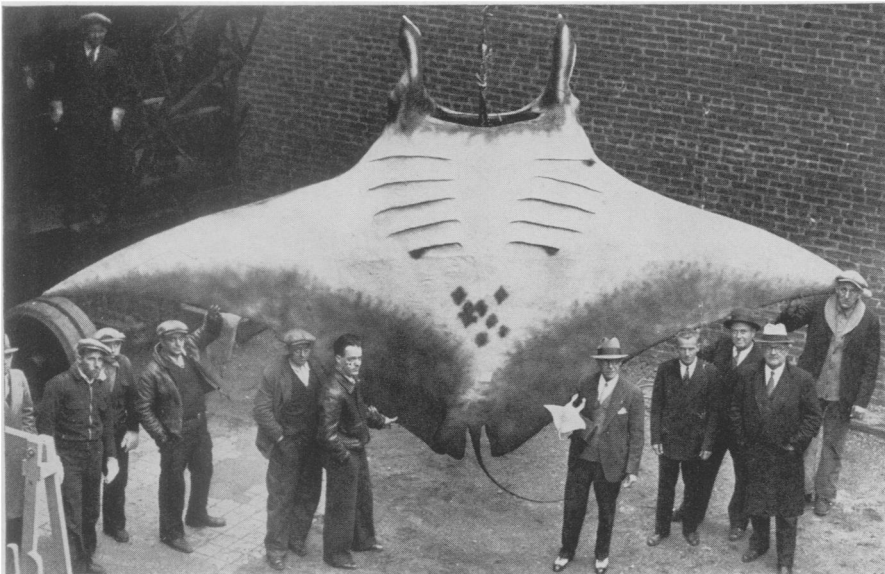
*Science News Letter, January 6, 1934*

## MEDICINE

## Anesthetic Rivals Ether In Certain Operations

**E**XPERIENCE with a new anesthetic which is injected directly into the blood and which may prove as valuable as ether for certain types of surgical operations was reported by Dr. Gavin Miller of Montreal, to the Canadian Medical Association.

The new anesthetic is called evipan and was produced by a German pharmaceutical manufacturer. It has been tried extensively in Germany and England. Only one death was attributed to the anesthetic in over 20,000 cases in which it was used. Chemically, evipan is



*New York World-Telegram*

### ACCIDENTAL DEATH FAR FROM HOME

This giant devilfish (*Manta birostris*) snagged itself in the anchor chain of a fish-boat off Deal, N. J., during the past August. An unusual catch so far from warm waters, the giant manta proved interesting to Dr. Henry W. Fowler of the Philadelphia Academy of Natural Sciences, who examined it. He measured the fish's width as twenty feet four inches and estimated the weight to be between 3,000 and 4,000 pounds. The specimen is a female and, as it was hoisted in, gave up one young which is held by a man near the center of the photograph. This huge fish had apparently not been eating smaller fish, for its estimated 40-gallons of food examined by Dr. Fowler was made up entirely of minute plankton and necton without apparent trace of fish tissue or bones.