

Demonstrations of the method have been given before the Jasper County Medical Society, a group of physicians at the Missouri State Medical Society, and before many other groups of physicians.

In making the original experiments I was following a theory of Dr. J. S. Haldane, the British physiologist, and Prof. Yandell Henderson of Yale. I asked myself what should be done when respiration ceased and the usual methods of resuscitation failed. I conceived the idea of an intravenous respiratory stimulant in the case where respiration has ceased and the heart beat was still present. The idea was based on the fact that hydrochloric acid when combined with carbonates produces carbon dioxide gas and that the blood of animals in a state of asphyxia is prone to shift toward an alkaline state. I decided that hydrochloric acid administered intravenously would obtain this desired result. Experiment showed that it did. Such was the birth of my discovery.

Ionization May be Cause

The idea of the production of carbon dioxide and its action as a respiratory stimulant was my original idea, but because the reaction caused by the injected acid is too instantaneous, I abandoned this theory some time ago. I am now working on the theory of ionization.

Other acids than hydrochloric have been used in my subsequent experiments.

Use of hydrochloric acid in recall from anesthesia is now being experimented upon at the University of Kansas, Northwestern University and by the Ernest Bishof Company in New York.

Nurse and Technician

I am a trained nurse and registered technician. I was graduated from the Duncan School of Technology at Kansas City, Mo., and I was a special student in chemistry at the Junior College in Kansas City. My other chemical education was self-obtained. Born in Monett, Mo., of poor parents, I was unable to pursue a higher education in college. I stole what chemical knowledge I could from contact with chemists and from books that I could buy or borrow.

My ambition is a position in a research laboratory where I can have the facilities to test further theories I have for the advancement of scientific medicine.

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ASTRONOMY

Universe Not Expanding in Our Part of Cosmos, Shapley Says

WHILE the universe as a whole may be expanding, as recent astronomical theory contends, the portion of the universe closest to man and the earth, extending for millions upon millions of miles out into space as far as the famous Clouds of Magellan and the Andromeda nebula, is not expanding. This is the conclusion Dr. Harlow Shapley, director of the Harvard Observatory, announced when he was presented the Rumford Medal of the American Academy of Arts and Sciences.

Dr. Shapley has studied intensively the region of the cosmos relatively close to us and he finds that there is a local supergalaxy, a sort of universe within a universe, consisting of our own Milky Way system, the two clouds of Magellan, the Andromeda nebula and two companions, and two other external galaxies. This supergalaxy seems to behave as a single unit and it does not show the expansive nature attributed to the universe as a whole by the theory of Abbé Georges Lemaître, the Belgian priest-cosmologist.

Doubled in Size

Dr. Shapley's study has doubled the previous estimate of the size of the Large Magellanic Cloud, which is the nearest of the external galaxies. It is a spectacle of the southern latitude skies and bears the name of the famous world explorer. The dimensions heretofore accepted have been doubled, and Dr. Shapley rates the Large Cloud as not less than twenty thousand light years in diameter. This makes it larger than the average external galaxy, but it is still much smaller than our own system and the great Andromeda nebula.

Using photographs made at the Harvard Observatory's southern station in the Orange Free State of South Africa, Dr. Shapley has found that there are several millions of giant and supergiant stars that are of higher candle power than our own sun, some of them ten thousand times as bright.

A gigantic mingling of our own Milky Way galaxy with the Large Magellanic Cloud some time in the past, many, many thousands of years ago, may have occurred, Dr. Shapley surmises

from irregularities in the cloud. He finds an intimation in the arrangement of newly found star clusters in the cloud that it is a deformed or broken-up spiral, and he believes that the disfiguring may have been caused by the passage of the cloud through our Milky Way at a remote past time.

Five hundred new variable stars, found among the giants and supergiants of the Large Magellanic Cloud, bring the total to thirteen hundred and fifty. These are the famous Cepheid variables that astronomers can use as yardsticks of the heavens. They allow Dr. Shapley to estimate that the Large Cloud is so distant that it takes speedy light ninety thousand years to travel from it to earth.

600 Nebulae Found

One of the last Harvard Observatory discoveries of 1933 was reported by Dr. Shapley. He said that six hundred galactic nebulae, great masses of stars similar to our own Milky Way, have been found in a region where only sixteen were known hitherto. This accomplishment was made with the aid of one of the Observatory's new telescopes.

The bit of the heavens thus given nearly a forty-fold increase in its known population of galaxies is an area about equal in size to the bowl of the Great Dipper and lying between that constellation and the Lynx.

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ARCHAEOLOGY

Queen Jezebel's Ivories Divided Three Ways

BROKEN pieces of carved ivory, all that is left of the extravagances and splendors of wicked Queen Jezebel of Bible fame, have been divided three ways among museums in Palestine, England, and the United States. Twenty fragments of the palace ivories have just come to the Fogg Art Museum at Harvard University, Prof. Kirsopp Lake, of Harvard, announced.

The carvings reveal visibly for the first time the meanings of Bible lines, describing the "ivory house" belonging



FROM THE 'IVORY HOUSE'

A drooping palm, one of the twenty fragments of ivory carvings from Queen Jezebel's palace in Samaria, now acquired by the Fogg Art Museum of Harvard.

to King Ahab and his Queen Jezebel, at Samaria. Existence of the ivory house of the royal pair has often been questioned, until the recent discovery of the ivory fragments by an expedition, of which Prof. Lake was a member.

The excavations show that Ahab's palace stood on top of the hill of Samaria, in a great open court extending over some seven or eight acres. Massive walls surrounded this court, and the ivory art pieces were found just inside the north wall. Several thousand fragments were recovered, but many were blackened by fire.

The ivory pieces are believed to have adorned the throne, tables, couches, and cabinets of the palace, and possibly also the wall panels. Nearly forty pieces are in excellent preservation. From these, archaeologists deduce that King Ahab imported much of his palace art from Egypt. Many of the figures depicted are from Egyptian mythology, and the decorative motives feature the Egyptian lotus and drooping palm. Plainer, less skilfully worked ivories suggest local Samarian workmanship.

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PUBLIC HEALTH

Country's Lowest Death Rate Reported by Surgeon General

Institute of Health Chemists Learn More About Sugar; Radium Dial Painting Still a Menace

THE DEATH rate for this country for the calendar year 1932 was the lowest ever recorded, Surgeon General Hugh S. Cumming, U. S. Public Health Service, stated recently. The statement was contained in the Surgeon General's annual report to Congress which covers the activities of the Service for the fiscal year ending July, 1933.

Unusually favorable health conditions prevailed during the first half of 1933 and the indications are that the whole year just ended will also prove to have been an unusually healthy one. Preliminary reports from large cities of the country for 1933 indicate a still lower death rate than before recorded, being less than 12 per 100,000 population.

Mitogenetic Ray Proof Lacking

Mitogenetic rays, those mysterious and supposedly potent rays said to emanate from roots of growing plants and yeast cultures, may exist but physical proof of their existence is lacking, it appears from the report.

At the Service's office of field investigations of cancer, under the charge of Dr. J. W. Schereschewsky at Boston, studies designed to demonstrate by physical means the presence or absence of these rays were carried out, using the Geiger radiation counter, an apparatus for detecting and measuring extremely small quantities of radiation. The sensitivity of this apparatus was determined in absolute units and was found to be at least six times as great as necessary to respond to radiation of the intensity assigned to mitogenetic radiation. Even with this very sensitive detector no rays could be detected from any of the various substances said to be active radiators of mitogenetic rays.

No More Mouth Pointing

Radium dial painting still threatens the health of the workers in the industry, according to the report.

The health hazard of this occupation was not entirely eliminated when the habit of pointing the radium paint

brushes with the mouth was stopped, Dr. R. R. Sayers and associates of the federal health service found. Their examinations showed that there is a slight accumulation of radium in the bodies of workers who have been employed since January 1, 1927, that is, under present conditions with mouth pointing eliminated.

Dust in the air of the workrooms was found to be radioactive to a degree sufficient to account for the radium accumulation in the bodies of the employees. The federal health experts recommended that the dissemination of dust in the workrooms should be prevented by extreme cleanliness in the factory. In addition, personal cleanliness of employees and adequate ventilation, both local and general, were urged.

Chemical Views Upset

Current chemical views as to the composition of sucrose, the common sugar of our kitchen shelves, dining tables and candy shops, have been unsettled by discoveries of Prof. Claude S. Hudson and associates of the U. S. National Institute of Health, briefly described in the Surgeon General's report.

These studies of the veteran sugar chemist raise the important question of whether the present view of how this sugar is decomposed in our bodies by the digestive ferment, invertase, is correct. The new ideas about sugar resulted from the isolation in pure crystalline form of a new, very reactive substance, a gamma methyl fructoside, derived from fructose, the sugar of fruits. The new substance could not be decomposed by invertase.

Prof. Hudson and associates were investigating the way in which invertase, digestive ferment present in the digestive tract and in yeast, splits sucrose into glucose and fructose. Their studies made it clear that this mechanism of the inversion of sucrose by invertase is essentially concerned with the fructose portion of the molecule.

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