

symbols common to Euclidean, or flat, space.

Out of his intricate mathematics Dr. Rosen has been able to devise formulae which appear to make gravitation a factor in nuclear problems, something which previously has not appeared in theories about the hearts of atoms.

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## Mapping Skin Pores

**A** NEW method of mapping the pore pattern of the human skin, which may some day supplement present fingerprinting methods in establishing human identity, was described by Dr. Harold A. Abramson, New York physician specializing in biophysics.

When methylene blue is applied to the skin by electrical current the whole area soon turns blue. But if the surface of the skin is rubbed thoroughly, all the color comes off except at the places where pores of the sweat glands show. Thus tiny blue dots show up under a microscope at any places where sweat glands are present, virtually over the entire body.

A significant point, although Dr. Abramson did not describe it to the physicists and mentioned only the physics of the phenomenon, is that the patterns of the sweat glands are characteristically different for every individual in the same way that fingerprints are characteristically unique. In fact, a close examination of fingerprints shows that along each ridge are pores and that the fingerprints are merely the readily visible patterns of the pores in a particular spot on the body.

Explaining the phenomenon, Dr. Abramson pointed out that electrical currents can carry drugs and dyes into the skin by a process known as electrophoresis. Using dyes like methylene blue, it has now been learned that it is through the pores of the sweat glands that this passage occurs. Previously scientists did not know whether it was the hair follicles, the skin as a whole or the pores which transmitted the materials electrically.

Drugs like cocaine, novocaine and histamine have long been known to have the ability to penetrate the skin without breaking the skin by injection.

The new method of making the pore pattern show up on any part of the body will give scientists new "maps" for every individual that are much more comprehensive than present fingerprints. Human identification in accidents where fingerprints may be obliterated is only one possible application.

Another drug which Dr. Abramson has been able to make penetrate into the body through the skin by electrical action is sodium prontosil, a drug with many of the beneficial aspects of sulfanilamide. Whether the new method will be used in the treatment of infectious diseases for which sodium prontosil is helpful has not yet been studied, but the possibility exists.

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## Compact X-Ray Machine

**M**ASSACHUSETTS Institute of Technology scientists have constructed a 1,250,000-volt electrostatic X-ray generator so compact it fits in a small tank three feet in diameter and nine feet high, Prof. John G. Trump reported.

Only one-tenth the size of its million-volt predecessor, built in 1937 for the Huntington Memorial Cancer Hospital in Boston, the new generator will go into the tumor clinic of Massachusetts General Hospital.

A new mercury bath method of directing the piercing, 1,000,000-volt X-rays of another powerful machine, to be installed this spring in the new quarters of the Memorial Hospital, New York, important American center for cancer treatment, was also described to the meeting by Dr. G. Failla, Memorial Hospital physicist.

Small hollow boxes are sunk in a bath of mercury and will serve as exit slits for the powerful X-ray beams, to give

angular control of the radiation to radiate hidden tumors within the body of a patient. The heavy mercury around the boxes stops the radiation, which goes through the boxes easily.

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## Water Wall Cuts Off Heat

**W**ALLS of cooling water instead of glass are the newest feat of scientists in using extremely hot electric arcs in their laboratories.

Making transparent, gas-tight enclosures in the form of cylindrical "curtains" of water was reported to the meeting by Dr. Brian O'Brien of the University of Rochester's Institute of Optics.

"If a continuous film of liquid is projected from a long narrow slot, the film will, in general, collapse a short distance beyond the orifice due to surface tension," said Dr. O'Brien's report.

"This can be prevented by a suitable component of the emerging liquid. Such films in the forms of figures of revolution are useful as transparent gas-tight enclosures about high intensity light sources, the liquid serving as a light filter."

A powerful 10 kilowatt carbon arc light has been operated many hours inside a water film, shaped like a cylinder nearly four inches in diameter and a foot long without a break occurring in the film.

Larger cylindrical films, a foot across and two feet long, have been produced.

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### PSYCHOLOGY

## Psychologists Devise Game To Teach "Mindreading"

**N**EW card games that teach the players "telepathy" have been developed by psychologists and will soon be put on the market by Dr. Ogden Reed, experimental psychologist, of Chicago.

The object of the game is to learn to read the thoughts of another person as he concentrates on one of the cards pulled from a shuffled deck. The prize for the best score is contained in a sealed envelope included with the game. This surprise consists of an explanation of how the "mind reading" is done.

Here is the secret for one of the games. This test is called "What time is it?" The cards each contain the face of a clock with the hands pointing to either 3, 6, 9, or 12.

Experiments conducted by the psychologists have shown that nine out of ten people look first at the center of the clock dial and then move the eyes to the figure at which the hand is pointing. By observing the eyes of the person concentrating on the card, it is easy to name the hour indicated on the card.

The game not only demonstrates the importance of such unconscious facial expressions in so-called mind reading, but also provides a means of developing powers of observation, Dr. Reed commented. After playing the game 20 to 30 times, the average person should be able to name almost every card correctly, he said.

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