

cents a pound to 4.5 cents, and methanol from 67.5 cents a gallon to 33 cents.

In the period of research covering 15 to 20 years:

Radio sets from \$200 to \$50, gasoline from 31.4 cents a gallon to 14.3 cents, camphor (natural) \$3.75 a pound to 30 cents (synthetic).

Such a list could go on indefinitely but it would still omit a perhaps even greater aspect of research: the formulation of new industries which never before have existed.

*Science News Letter, January 28, 1939*

#### PHYSICS

### Newest Vacuum Pumps Create Low Pressure

**T**HE EMPTIEST man-made space ever attained is now being created by the newest vacuum pumps which use oil molecules to sweep out the air from scientific apparatus.

While it is impossible to produce a perfect vacuum, a vacuum can be created in which it is possible for a molecule to travel nearly 500 feet (15,000 centimeters) before it would encounter another molecule.

Since a molecule is only about .000001 centimeter in diameter, it means that in travelling 15,000 centimeters the molecule goes over 100,000,000 times its own length before encountering a companion. Here, truly, is loneliness.

If the same emptiness were applied to people it would mean that a man 5.2 feet tall would have to travel over 100,000,000 miles before meeting anyone. The loneliness would be much greater than if there was only one man on the earth and another on the sun.

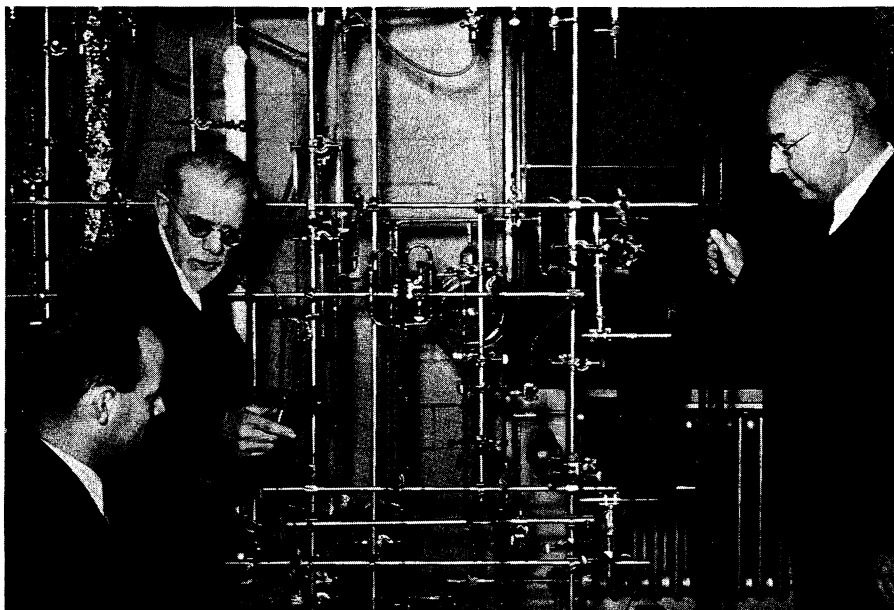
In terms of atmospheric pressures the new oil diffusion pumps, as they are known, can produce pressures of .000-00005 millimeter of mercury without the use of cooling traps of liquid air.

Normal atmospheric pressure is 760 millimeters of mercury, which is more than a billion times that attained in the newest oil diffusion pumps.

In operation the new pumps consist of elaborate and beautiful glassware arranged in tubes and columns to make a complete circuit for the oil vapor.

The oil is heated at one point in the circuit and the vapor flows around the loop. As the flow passes a specific point it comes by an opening leading to the chamber to be evacuated. Molecules of air coming out this opening are bumped by the oil molecules and the latter knock the air molecules away from the container being evacuated.

*Science News Letter, January 28, 1939*



#### AT DEDICATION

*An elaborate set of apparatus in the new chemical research laboratory of Brown University dedicated on December 28. Pres. Henry M. Wriston, right, looks on as Prof. Charles A. Kraus, center, president-elect of the American Chemical Society, discusses the set-up with Prof. John P. Howe.*

#### PUBLIC HEALTH

## Men Suffer For Beauty, Too; Permanent Scars Reported

**T**HE PRICE of manly beauty sometimes comes high. Take the matter of deinking hair on the closely cropped male pate.

From Harlem Hospital, New York, comes the report of two cases of painful burns and probably permanent scarring resulting from such attempts at hair straightening. Dr. Frederic Lewis and John V. Scudi, reporting the cases (*Journal, American Medical Association*, Jan. 7), say that the men who use hair straighteners are principally, but by no means exclusively, Negroes.

Hair straighteners developed for men contain caustics, notably sodium hydroxide, which converts the hair protein to a gel. When not applied with great care, severe burns may result.

One of the men who suffered long for sweet beauty's sake looked, when the doctor first saw him, as if he had second degree lye burns. He had applied the hair straightening cream to his own woolly head, and had let the rinse water trickle down his face. He was three weeks in Harlem Hospital. His scars are probably permanent.

Case No. 2 has a large white expanse on his otherwise chocolate forehead. As Dr. Lewis and Mr. Scudi report the case:

While applying a cream for the purpose of straightening the patient's hair, the barber got to talking of "women people." Original sin haunted that barbershop and for fully five minutes enraptured its proprietor. The client made efforts to tell the barber that something was burning his forehead.

"The sequelae are not accurately remembered by the patient. There were several days of soreness, then crust formation and gradual exfoliation (scaling). The depigmentation (loss of color) proved enduring, but the straightening of the hair, alas, was transient."

Hair straighteners on the market have been found to be within the limit set by the Federal Caustic Poison Act, but there can be no regulation of their manufacture in the home and barbershop, the New York doctors point out.

Much of the peril lies, they believe, with such synthesizing amateurs who would do miracles of straightening.

*Science News Letter, January 28, 1939*