MEDICINE

Radar for Healing Sick

Waves can be used for heating living tissues and may be superior to the methods now used. It can be beamed and localized like spotlight.

➤ RADAR, famous for its use in military aviation, is now going to be used to heal the sick. Experiments showing its potential value in medicine are reported by Drs. Frank H. Krusen, J. F. Herrick, Ursula Leden and Khalil G. Wakim, of the Mayo Foundation in Rochester, Minn.

It will be used to heat living tissues in conditions where that is desirable. Shortwave diathermy is now used for this purpose. Radar will be better for this purpose for a number of reasons, the Mayo scientists believe.

Radar can be beamed and localized like a spotlight, which will make its medical use easier. The patient will be free to move away from the radar director at any time. Freedom from pads, encumbering cables and toweling commonly used with shortwave diathermy will permit more rapid cooling of the skin, which constitutes another advantage of radar.

The medical use of radar was under investigation years before the war. It had not then been given its name, radar, but was known as microwave therapy or microkymatotherapy. Starting in 1937, Dr. Krusen and associates were in correspondence with various physicists about the then newly discovered electromagnetic waves that could be focussed and made to travel along tubes. By March of 1939 they had learned of the Klystron tube and, as Dr. Krusen relates, thought that at last they had tracked down a tube of large enough wattage to provide radiation of sufficient power for medical use.

"But suddenly all such tubes became mysteriously unavailable. We could never obtain a Klystron or a magnetron tube. We were greatly puzzled during the years that followed and during the early part of the war concerning our inability to obtain a microwave tube just when tubes of sufficient power were becoming available.

"It was not until the secret of radar was finally revealed that we realized that all such tubes had been frozen for military use and were being employed for this secret wartime development."

Details of the studies preliminary to medical application of radar are reported in the proceedings of the Staff Meetings of the Mayo Clinic (May 28).

Science News Letter, June 28, 1947

ENGINEERING

Ore Separation Process Uses Centrifugal Force

➤ INDUSTRIAL operations that depend on separating light particles from heavy ones, such as ore flotation and coal sorting, are now offered the benefits of centrifugal force, long familiar in the cream separator. A machine embodying this principle, invented by H. L. McNeill of Denver, has been covered by U. S. patent 2,422,203.

The mixture of light and heavy particles, as it comes from the grinding mill, plus water and whatever pulp is used to facilitate separation, is discharged into a conical or cylindrical chamber, within which a correspondingly-shaped rotor is spinning. Light and heavy particles, thrown outward from the rotor, form two zones, the lighter within and the heavier without. Heavy particles settle to the bottom and drop out through a central opening; light ones float to the top and find there an appropriate discharge spout.

Science News Letter, June 28, 1947

CHEMISTRY

Blame Soap Molecule If Shaving Cream Hardens

➤ BLAME THE SOAP molecule if your shaving cream hardens in the tube or your cosmetics turn to a rubbery jelly.

That is the verdict of chemists, reported to the American Chemical Society's National Colloid Symposium held at Stanford University.

The soap molecule is the villain to blame for deterioration of greases or ointments, Todd M. Doscher and Robert D. Vold of the University of Southern California explained.

Shaped like a pencil, the soap molecule has one end which is soluble in oil, while the other end is soluble in water. Lubricating grease, ointments and such products as shaving cream and cosmetics are mixtures of these pencil-shaped soap molecules with water and oil.

If there is too little water, then the soap molecules form a tight network which forces out the oil. If there is too much water, the oil and water form an emulsion which will ruin a lubricant.

The remedy, the chemists explained, is correct proportions of soap, oil and water. Creams, greases and ointments have been made by rule-of-thumb methods, they charged. Like cook-book recipes, the formulas do not always work.

More scientific study by chemists may solve some of the problems.

Science News Letter, June 28, 1947

SCIENCE NEWS LETTER

Vol. 51 JUNE 28, 1947 *No. 25*

The weekly summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C, NOrth 2255. Edited by WATSON DAVIS.

Subscriptions—$5.00 a year; two years, $8.00; 15 cents a copy. Back numbers more than six months old, if still available, 25 cents.

Entered as second class matter at the post office at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., PEnnsylvania 6-5566, and 360 N. Michigan Ave., Chicago, STate 4439.

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