

PUBLIC HEALTH

USSR Studies Radiation

Evidence that radiation doses could affect man's resistance to bacterial infections, even promoting the spread of one disease, whooping cough, is presented by Soviet research.

► SOVIET MEDICAL researchers are delving into the dangers that can result from an atomic war or excessive exposure to radiation.

They have found the amount of radiation sickness suffered by man determines his resistance to bacterial infections such as tetanus and gas gangrene. They have also found a fairly high dosage of radiation from X-rays can prolong whooping cough and even help its spread in the lungs.

The Soviet radiation research findings are reported in a second volume of *Abstracts of Soviet Medicine* published by the Excerpta Medica Foundation of Amsterdam, The Netherlands.

In one study, by Drs. P. N. Kiselev and E. V. Karpova of the Central Roentgen-Radiological Institute, Leningrad, 2,000 white mice were subjected to doses of 300, 500 and 700 roentgens. (For humans, it is estimated that 400 to 450 roentgens would kill 50% of those exposed and 600 or more roentgens would kill nearly all persons within 30 days. It takes 530 roentgens to kill 50% of a mouse population.)

These mice were then given toxins of *Bacillus tetanus* and *B. perfringens* or gas

gangrene the next day and each week thereafter. The Russian scientific team found the sensitivity of mice towards the toxins depends on the severity of the radiation sickness produced. The sensitivity 24 hours after exposure to 300 roentgens, for example, is one and one-third times greater than that of animals not exposed to radiation.

This shows, the Russians report, that exposure to radiation results in a weakening of the natural ability to fight bacterial infection and is important for the treatment of bacterial infections in cases of radiation sickness.

In a second study with mice, Dr. B. N. Sofronov of the department of microbiology of the Institute of Experimental Medicine, Leningrad, found that whooping cough can be prolonged in the lungs of mice with a dosage of 400 roentgens from X-rays. In addition, he found, the irradiation helps to spread the infection.

The whooping cough-radiation study also revealed exposure to radiation immediately before or after the mice were immunized against the disease inhibited the production of antibodies and lessened the effect of the serum.

Science News Letter, October 12, 1957

PHYSICS

High-Speed Photos for Study of Bubbles, Drops

► HIGH-SPEED photography is showing that the size and shape of bubbles and drops become important in the liquid-liquid or gas-liquid contacts that are so necessary in making such products as gasoline, rayon, asphalt, dynamite, DDT and even maraschino cherries.

Dr. Robert C. Kintner, professor of chemical engineering at the Illinois Institute of Technology in Chicago, has been using high-speed photography to study bubbles and drops. He is interested in their shapes and speeds in relation to size, the effect the surrounding fluid has on them and the role surface-active agents and impurities play in their size, shape and internal structure.

A large variety of shapes has been discovered in gas bubbles.

Besides spherical ones, there are flattened spheres, ellipsoidal bubbles, "cap-shaped" spheres and even "inverted tear-drop" shaped bubbles, formed in special liquids. Liquid drops of tear shape have been found to leave behind a fine "vapor trail" of tiny droplets of mist.

Dr. Kintner observed that surface-active agents much like laundry detergents hinder circulation within the drops or bubbles, slow them up in their travel and prevent them from merging into larger bubbles or drops.

Impurities in the surrounding fluid tend to concentrate in the interface between close-packed drops or bubbles, and act as "shields" to prevent them from merging, behaving like the surface-active agents. Almost any impurity can act this way.

Certain phenomena shown by bubbles and drops can only be discovered by using high-speed photography, said Dr. Kintner. The observations will be used to construct mathematical equations that can "predict" the way the drops or bubbles will act, thus helping to increase the efficiency of processes which have to make use of bubble and drop phenomena.

Science News Letter, October 12, 1957

INVENTION

Patent Office Hopes To Bar Advertising

► THE U. S. PATENT Office has initiated action to prohibit patent attorneys and other agents from soliciting patent business through advertising.

A proposal to amend the current regulations, made by Robert C. Watson, Commissioners of Patents, and approved by the Acting Secretary of Commerce, Walter Williams, appears in the *Patent Gazette* (Sept. 24).

The proposed amendment to the rules of practice in patent cases calls for the refusal of recognition to practice before the Patent Office and even suspension, exclusion or disbarment for those guilty of advertising.

The change in the regulations is aimed at preventing "the use of advertising, circulars, letters, cards, and similar material to solicit patent business, directly or indirectly. . . ."

It makes exception, however, for the use of "simple" professional letterheads, calling cards or office signs, simple announcements for opening an office or changing an address, and insertion of listings in the classified section of a telephone book. Displays in the classified section, on the other hand, would be forbidden.

The Commissioner has called for views, arguments or suggestions about the proposed changes and has also set Nov. 19, 1957, for a hearing on the matter.

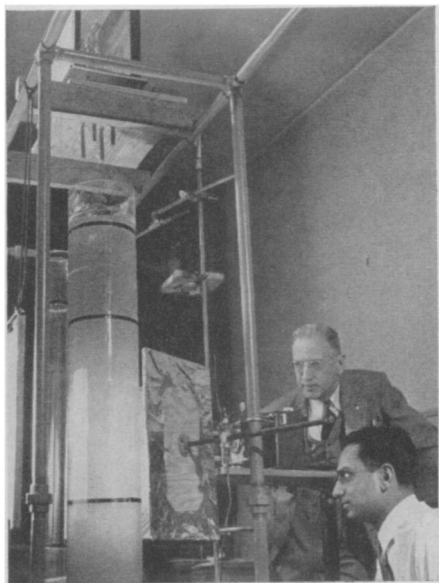
At present, advertising for business is considered unethical by the American Bar Association, other bar associations and the American Patent Law Association. The large majority of patent attorneys and agents comply with these codes of ethics. Of the 6,000 persons registered to practice before the Patent Office, not all of whom are lawyers, it is estimated that about one percent are presently advertising for patent business.

The proposed changes are directed primarily against this small group.

A similar change was made by the Patent Office in 1950 in the Trade Mark rules.

Other Government agencies and departments have similar bans for those persons practicing before them against advertising for business, including the Department of Interior, Post Office Department, Veterans Administration, Immigration and Naturalization Service and the Interstate Commerce Commission.

Science News Letter, October 12, 1957



BUBBLE PICTURES — Electronic flash photography is used to obtain instantaneous shapes and sizes of bubbles moving in a liquid field. Dr. Robert C. Kintner checks the work of graduate student Shaukat Azim. The camera used in the experiments rests on the platform which appears in the student's direct line of vision. The tall cylinder contains the liquid being studied.