16–21. Radiological Soc. of North America, Chicago, Ill. (D. S. Childs, 713 E. Genesee St., Syracuse, N.Y.)

16–23. Scientific Information, intern. conf., Washington, D.C. (Mrs. M. Sheppard, Intern. Conf. on Scientific Information, Natl. Acad. of Sciences–Natl. Research Council, 2101 Constitution Ave., Washington 25.)

17–20. Conference on Magnetism and Magnetic Materials, Philadelphia, Pa. (H. B. Callen, Dept. of Physics, Univ. of Pennsylvania, Philadelphia.)

18–20. Air Pollution, 1st natl. conf., Washington, D.C. (Dept. of Health, Education, and Welfare, U.S. Public Health Service, Washington 25.)

(See issue of 19 September for comprehensive list)

Letters

Radioactive Wrist Watches

J. L. Haybittle, of the Radiotherapeutic Center at Addenbrooke's Hospital in Cambridge, England, has reported in *Nature* (17 May 1958) that some luminous-dial wrist watches contain sufficient radium to subject their owners to nearly two-thirds the maximum permissible level for exposure of hands and forearms. According to Haybittle, one watch, having an estimated radium content of 2.2 μc, recorded on a film placed in contact with the back of the watch a dose rate of 8 mr/hr.

During the past year we have been investigating the degree of radioactivity of luminous-dial wrist watches as these were made available to us by their owners. Watches were found to vary more than tenfold in their activity. Of 20 watches examined, 12 showed activity not exceeding 1 mr/hr at a distance of approximately 1 in. from the face of the watch, four registered between 1 and 5 mr/hr, two between 5 and 8 mr/hr, and two between 8 and 10 mr/hr.

With an activity of 8 mr/hr at a distance of 1 in., it may be calculated that at a distance of 8 in. a wrist watch worn 24 hours a day can deliver 1.1 r a year; this is the dosage that might be delivered to the gonads by the most active watches when the watch is worn on the wrist in a position facing the gonads. The least active watches could deliver approximately one-tenth this activity, or 110 mr/yr (at 8 in.); at 12 in. this would be reduced to about 49 mr/yr, in good agreement with the dosage of 40 mr/yr estimated by Libby in *Science* [**122**, 57 (1955)] for a wrist-watch radiation source at an average distance of 12 in. from the central body, including sex organs. The potentially harmful magnitude of the radiation from the most active watches, corresponding to 5 rem in about 5 years, may be judged in the light of the recommendation by the International Commission on Radiation Protection that no one should receive a dose in excess of 5 rem by age 30.

When one further considers that this radiation is several times greater than natural background radiation and exceeds by more than 100 times that presently received from radioactive fallout, the potential hazard to the wearer of a luminous-dial wrist watch raises the question as to whether the small benefit that may be received from such a watch is worth the hazard.

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Drug Synergism

In the report entitled "Drug synergism (potentiation) in pain relief in man: papaverine and morphine," by Macris, Gravenstein, Reichle, and Beecher [*Science* **128**, 84 (1958)], the authors found "that less pain relief is obtained from morphine not preceded by papaverine." In their interpretation of this finding the authors conclude that "synergism in the relief of pathological pain has been clearly demonstrated with analgesic drugs." The authors also point out that papaverine alone has no analgesic power.