

every girl engaged in their manufacture in a Jersey, U.S.A., factory died from the effects of internal radium bombardment. When one considers that even so minute a mass of radium as a millionth of a gramme constitutes a battery incessantly firing 3,000,000 projectiles a minute with a velocity of the order of 75,000 miles a second, the fate of these girls is not to be wondered at. The most extraordinary phenomenon in connexion with their deaths is that for years afterwards the bones appear to have retained radio-activity. Dr. E. E. Free of the faculty of New York University secured a finger-bone of one of the victims long after interment and placed it in front of a Geiger counter. He was thereby able to demonstrate the far-reaching fact that atoms of the bone were still emitting high-velocity particles. Now, as all the elements contained in bone are potentially radio-active and, like sodium, comparatively inexpensive, might not their use in place of radium afford a practical solution of a difficult problem? To such end I suggest that experiments should be carried out to ascertain the relative particle-emitting efficiency, as compared with radio-sodium, of irradiated bone elements—calcium, phosphorus, magnesium, etc.—both separately, and collectively in the form of irradiated bone-dust.—I am, etc.,

CHARLES M. BEADNELL,
Surgeon Rear-Admiral.

Egham, Surrey, May 10.

Rubella and the Fourth Disease

SIR.—The condition which for want of a better name has been called the fourth disease—the others being scarlet fever, measles, and rubella—is generally considered by most authorities to be either a rubella with a scarlatiniform rash or a simultaneous infection with both rubella and scarlet fever. Whichever of these be correct, if indeed either be, then with this year's wide-spread epidemic of rubella and the usual sporadic cases of scarlet fever one should have expected reports of such combinations in fairly large numbers. Indeed, these may have occurred, and I write this letter to ask that they should be reported in as full detail as is possible.

The usual description of the condition is that it begins suddenly with a profuse rash which, starting as morbilliform, rapidly assumes the appearance of a severe scarlet fever, but of course retaining its raised character. Fever is usually high—often 104°—and there is enlargement of the post-cervical glands and sometimes of the axillary and inguinal as well. The patients look and feel extremely ill, but complications seem to be rare. The most striking feature, however, is the very complete desquamation, rarely paralleled in the average scarlet fever.—I am, etc.,

London, N.6, May 25.

W. LEES TEMPLETON.

Problems of Rubella

SIR.—In reference to the article "Rubella at Sea" (May 25, p. 851), I should be interested to know whether any other similar investigations have been carried out, and whether the numbers mentioned in this article are too small to be of value regarding the epidemics of rubella and "sore throat" which occurred this year.

Particularly am I interested in the following points: (1) Was the rubella atypical in type? (a) Its infectivity appeared less than was anticipated (presumably there was not a high incidence of immune ratings). (b) Indirect infection is not usual in rubella. (c) The incubation period of the one known case was only nine days—that is, shorter than the usual time. (d) Are not the "red spots" on the hard and soft palate atypical? (2) Despite the conclusions in the article, perhaps there are a few slender points in favour of a relationship between the rubella and "sore throat": (a) Apparently no rating who developed the "acute cold" or "sore throat" subsequently developed rubella, and vice versa. (b) The average duration of the illness was the same in both diseases—namely, six days. (c) One of the few complications of rubella is recurrent sore throat.

To further this one would need to know whether any of those who developed the sore throat had ever had rubella. If so, then may they not be showing a manifestation of a

second infection in the form of recurrent sore throat? If not so, then may not the rubella virus be affecting different people in different ways? Once again, assuming a relationship between the diseases: if (and the article does not say) the sore throats began before the rubella, then the indirect method of infection would be discredited.

As a student I write with all humility, and as I have not the facilities for any such investigation I should be grateful to hear of any other work carried out on the recent epidemic which would clear up my difficulties.—I am, etc.,

Medical School, Leeds, May 25.

R. P. MATTOCK.

The Services

CASUALTIES IN THE MEDICAL SERVICES

ROYAL ARMY MEDICAL CORPS

In Casualty List No. 4, issued by the Army Council, the names of Major-General George Grant Tabuteau, D.S.O., Major Kenneth Vyvian Milburn, Lieutenant William Edward Pennington, and Lieutenant Edward George Reynolds are posted under the heading "Died." Obituary notices of Major-General Tabuteau and Lieutenant Reynolds were published in the *Journal* of April 6 (p. 595) and March 23 (p. 510) respectively.

Major KENNETH VYVIAN MILBURN was educated at the University of Durham, where he graduated M.B., B.S. in 1924, also taking the M.R.C.S., L.R.C.P. in the same year. He proceeded M.D. (with high commendation) in 1927. He had held the posts of resident medical officer at the Princess Mary Maternity Hospital and house-surgeon to the gynaecological department of the Royal Victoria Infirmary, Newcastle-upon-Tyne, obstetric surgeon to the Borough Maternity Home, Sunderland, and was assistant honorary physician to the infirmary and to the Children's Hospital, Sunderland. He served in the war of 1914–18, receiving the medals, and had held the rank of captain in the Northumbrian Brigade, R.A., T.A., since March 18, 1935, being promoted to major at the beginning of the present war. He joined the British Medical Association in 1924, and was also a member of the Newcastle and Northern Counties Medical Society.

Lieutenant WILLIAM EDWARD PENNINGTON was educated at Liverpool, and took the L.M.S.S.A. in 1924. He was in practice at Ellesmere Port, Cheshire, and joined the Royal Army Medical Corps at the beginning of the present war.

The list also includes the names of Lieutenant James Ian McConnell as "Missing, Believed Prisoner of War," and Lieutenants George McLean Gorrie and Graves Ernest Stoker as "Prisoners of War."

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

J. S. Richardson and A. G. V. Aldridge have been approved by the M.D. Committee for the degree of Doctor of Medicine in absence.

The managers of the Frank Edward Elmore Fund have elected J. S. Mitchell, Ph.D., M.B., B.Ch., of St. John's College, to an Elmore medical research studentship from July 1, 1940.

At a Congregation on May 25 the following medical degrees were conferred:

M.D.—O. A. Trowell, W. T. Cooke.
M.B., B.Ch.—R. H. Taylor.

UNIVERSITY OF DURHAM

The honorary degree of D.C.L. is to be conferred upon Mr. Hugh Lett, President of the Royal College of Surgeons of England, at a Congregation to be held in June.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have satisfied the examiners at the examination indicated:

MASTERY OF MIDWIFERY.—Margaret Venters, M.B., Ch.B., M.R.C.O.G., S. H. Waddy, F.R.F.P.S.