it, and the basic neglect. The opportunity which this challenge presented came with the introduction of the National Health Service, which promised to every citizen the treatment he needed, but the opportunity was also a heavy responsibility for medicine. Even with present knowledge, if there were sufficient hospital beds and adequate treatment facilities the invalidism resulting from rheumatism could be greatly lessened.

Correspondence

International System of Weights and Measures

SIR.—In his letter (May 3, p. 613) Dr. D. A. K. Black is presumably referring to the method of recording volume in results obtained from the haemocytometer. As the haemocytometer is calibrated in linear measurements the volume is derived from these measurements and should be expressed in terms of the cube of the unit of linear measure—in this case the cubic millimetre. I pointed out in my article that the cube of a linear measure is a valid mode of expressing volume when the volume has been determined from linear measurements.

Mr. H. V. Stopes-Roe in his letter (p. 613) is correct in expressing volume as a cube of linear measurement if the volume has been actually determined from linear measurements, but it should be made quite clear that such is the case—that, for instance, the cubic centimetre which he uses is actually a cubic centimetre and is not used as an alternative to the millilitre. Although the expression of volume as a cube of linear measure is a valid procedure when it has been determined from linear measurements it is not nearly so simple to determine the volume of a container from linear measurements as it is to determine the weight of water required to fill it. Consequently units of volume came into existence defined in terms of the space occupied by a definite mass of water under specified conditions. The litre is the space occupied by a kilogram of water at its maximum density. This definition has the additional advantage that the kilogram, litre, and millilitre are interrelated, whereas the cubic decimetre and cubic centimetre are not related to the kilogram.

There is some obscurity in the following sentences from Mr. Stopes-Roe's letter. "It is a purely legal form (like the gallon) that the ml. ever got started; scientists writing scientific articles should refer to the cm³ . . . unless they are *actually* and *significantly* using the millilitre. If they be writing legal reports they should use throughout whatever odd units—yard, drachm, or litre—that may be legally required." If I understand Mr. Stopes-Roe correctly, I agree that scientists should use the term "millilitre" when they are "actually and significantly" using the millilitre; on the other hand, they should use the term "cubic centimetre" only when they mean volume derived from linear measurement. Both these modes of measurement have scientific validity when used strictly in accordance with their definitions; they are also both legal measures when used in their proper meaning.

As regards publication, surely the description of units of measurement should depend upon the units actually used and not upon whether the publication "wishes to be scientific or legal."—I am, etc.,

London, W.14.

J. M. HAMILL.

Tuberculous Pericarditis

SIR.—We read with interest Dr. Harry Kopelman's article on tuberculous pericarditis (April 26, p. 559). Of over 1,400 consecutive cases admitted to the pleural effusion unit of this hospital since 1942 six were complicated by pericarditis—an incidence of less than 0.5%. The diagnosis of tuberculosis was proved bacteriologically in three cases, and was made on strong presumptive clinical grounds in the remaining three. Three patients were males and three females. There were three deaths and two recoveries, one patient still being in the acute stage of the disease. The following is a brief summary of the case histories.

Case 1.—A man aged 24 years, of Irish descent, was transferred to this hospital, convalescent from a left pleural effusion and suffer-

ing from a serous pericarditis, in May, 1942. Tubercle bacilli were grown from the pericardial fluid. He made an uninterrupted recovery, and was discharged in October of the same year. Two years later he was known to be alive and well.

Case 2.—A man aged 22 years was transferred to this hospital from Bath in April, 1944, suffering a right pleural effusion complicated by a gross pericardial effusion. He had signs and symptoms of severe circulatory embarrassment. He was tapped repeatedly, with air replacement. Viable tubercle bacilli were repeatedly obtained from the pericardial fluid in spite of intrapericardial injections of "promanide." He was transferred to a sanatorium in August, 1944, and died there two months later.

Case 3.—A man aged 22 years, of Italian descent, was transferred to this hospital in June, 1943, suffering from a sterile lymphocytic pleural effusion on the right side. He relapsed in January, 1944, developing a pericarditis with loud friction sounds and little alteration of the cardiac shadow. He made an uneventful recovery and was discharged in June, 1944. Six months later he was re-examined, and, apart from some slight pleural thickening on the right side, was found to be well.

Case 4.—A girl aged 16 years was transferred to this hospital in April, 1943, with a sterile lymphocytic effusion on the right side. There was a strong family history of tuberculosis. Her effusion cleared, but in July, 1943, she developed an acute pericarditis with effusion. Paracentesis was twice performed to relieve distress, pale greenish fluid being obtained which was sterile on culture. She deteriorated rapidly and died on July 31, 1943. Permission for post-mortem examination was not granted.

Case 5.—A married woman aged 23 years developed a pleural effusion on the left side following the birth of her first baby in February, 1944. She was transferred here in March, 1944. On admission she was still febrile, and was acutely ill. In the middle of April she developed an acute pericardial effusion. A paracentesis showed a serous fluid, from which tubercle bacilli were grown. She deteriorated rapidly and died on May 12, 1944. Permission for necropsy was not granted.

Case 6.—An unmarried woman of 25 years was admitted to this hospital in February, 1947, suffering from a right pleural effusion. She was still pyrexial on admission. Eight weeks after her admission she developed precordial pain and a sensation of constriction in the chest. A loud and definite pericardial friction rub then appeared and has persisted since. There is no evidence of a pericardial effusion of a significant size. She is still in the acute stage of the disease.

Tuberculous pericarditis is thus seen to be an uncommon but not rare complication of tuberculous pleural effusion, and to be a disease with a variable course and prognosis, though the latter is grave.

We would like to thank Dr. Clifford Ellingworth, medical superintendent of Queen Mary's Hospital, Sidcup, for permission to publish these case reports.

—We are, etc.,

Queen Mary's Hospital,
Sidcup, Kent.

E. MONTUSCHI.
T. L. REEVES.

Tuberculosis and the N.H.S. Act

SIR.—I much appreciate the views expressed by Dr. G. Lissant Cox (April 26, p. 577) regarding tuberculosis and the N.H.S. Act. These are the opinions of a distinguished tuberculosis worker "in the field" who has recently earned a well-deserved retirement.

As one who has had an experience of over thirty years in this centre, directing measures for the control and elimination of tuberculosis, and who for the six war years assisted a powerful medical officer of health in his department, I foresee the grave danger of a cleavage between the hospital service, particularly as regards tuberculosis and mental welfare, and general infectious diseases, and the local authority—the domiciliary service. This cleavage might be obviated by building three bridges—at the centre, at the region, and at the hospital group levels.

At the centre by appointing three committees: (a) For tuberculosis, (b) for mental health, and (c) for infectious diseases. Similar committees at the regional and hospital group levels. Other committees to be formed at the three levels for maternity and child welfare and any other services requiring unification for their successful operation. Each committee to be composed of persons specially interested in that particular subject and guided and advised by "specialists" in that particular subject.

The health visitors of the local authority to act as investigators in the homes along with the sanitary inspectors, and "specialized" health visitors to be attached to the various medical, nursing, and clerical teams operating at the hospital group and local authority levels.

Taking the tuberculosis service as an example. The primary notification of tuberculosis would be visited by the health visitor, who would report on the housing conditions and general sociological circumstances. The primary notification would by law be sent to the local medical officer of health as chief epidemiologist, who would delegate the subsequent measures to the senior tuberculosis officer of the hospital team; the subsequent visits to be carried out by the "specialized" health visitors who attend the various clinics and are kept informed of everything affecting the patient and his family; the senior medical officer of the team to work in close harmony with the medical officer of health, particularly as regards housing and other necessary conditions. So far as after-care is concerned, this should be in the hands of the committee at the hospital group-local authority level and advised not only by the senior medical officer but also by the medical officer of health.

The framework could be extended to meet the needs of all other services, but modified according to the special needs of this service. Once the framework is accepted, the details can easily be filled in provided there is good will and a wide understanding.—I am, etc.,

Bradford.

HAROLD VALLOW.

SIR,—There are two facts apposite to the impending changes in the tuberculosis service which have so far received scant recognition. The first is that the relationship of the patient to his domestic, social, and economic background, which is now receiving so much attention and which to general medicine is a relatively new conception, has in fact been the everyday concern of the tuberculosis officer for many years. Secondly, the anti-tuberculosis organization as it has developed since 1914 has given us the nearest approach we have known to a public medical service providing hospital, clinic, and domiciliary treatment at a high clinical level for sick persons in large numbers. Despite certain inherent weaknesses and inequalities, and despite in some quarters official apathy and parsimony, it has emerged with a record of which it may well be proud.

For these two reasons the views of tuberculosis workers claim the special attention of those who will formulate the new regional schemes. It is to be hoped that the well-timed suggestions put forward by Dr. Lissant Cox (April 26, p. 577) will stimulate a lively discussion prior to the Minister of Health's address in July. Dr. Lissant Cox rightly stresses the need for medical teamwork. This can only be obtained where all concerned are responsible to the same employer. If only one person—for instance the health visitor—owes allegiance to a different authority from that of the tuberculosis officer, almoner, and clerk there is a sense of divided loyalties and the team spirit suffers accordingly.

Each tuberculosis area within a region will require a headquarters with office accommodation. It will be years before new establishments are available, and until then I suggest that in some areas the smaller institutions could, with minor alterations or extensions, be adapted for this purpose. Beds would continue to be available as before, and in those institutions where x-ray facilities are already provided out-patient clinics could be held as in country districts; this would be an added convenience for patients. In this way the institution would become a strongly defined centre, clinical and administrative, for the area.—I am, etc.,

Chichester.

J. E. WALLACE.

Sanitary Control of Ice-cream

SIR,—May I draw your attention to an inaccuracy in the epidemiological note (April 26, p. 583) on the above subject? The maintenance of a sufficiently low temperature after freezing and until sale is required in the case of a cold mix product as in the case of a pasteurized mix. Circular 69/47, which was issued with the regulations, points out in respect of the complete cold mix that after conversion of the reconstituted product into ice-cream Regulation 4 shall apply.

This regulation forbids the sale or offer for sale unless one of two conditions is met. One requiring further heat treatment should the temperature of the ice-cream be found to be above 28° F. (−2.2° C.) cannot obviously apply to the complete cold mix product; the other stipulates that ice-cream shall not be sold unless it has been kept at a temperature not exceeding 28° F. since it was frozen.

I should be grateful if you would draw the attention of your readers to this rather important aspect of ice-cream control.—I am, etc.,

Birmingham.

W. R. MARTINE.

Massive Penicillin Doses

SIR,—Dr. D. P. Wheatley (April 19, p. 530) has shown that the daily parenteral administration of penicillin can accelerate the resolution of localized septic foci if the doses are large enough. Thus, for the treatment of what he calls "seven cases of minor conditions commonly met with in general practice" he used 4,550,000 units of penicillin. The total period of convalescence from the commencement of treatment was at least 30 days.

From the few cases that I have treated I have been under the impression that a more rapid cure can be achieved by the combined use of local penicillin and free surgical drainage. The solution recommended for local use by Roxburgh contains between 500 and 1,000 units per ml. of distilled water and gives satisfactory results. In one case a pyogenic abscess of three days' duration was opened by a 1-in. (2.54-cm.) incision, and a cavity 1/2 in. (1.25 cm.) in diameter was found. A drain was inserted and penicillin was instilled. Twelve hours later the discharge was slight, and the drain was removed. On the fourth day, after daily instillations of the penicillin solution, the cavity was obliterated and the skin incision was clean and dry and healing rapidly. (Total amount of penicillin used was 4,000 units.)

If, as Dr. Wheatley has noted, the systemic treatment with penicillin is commenced early enough, the inflammation will abort. But, in cases where there is some delay in starting treatment, the generalized symptoms of toxæmia and the signs of inflammation will subside, leaving a localized collection of pus which requires surgical treatment. It is suggested that, once it is decided that the inflammation is progressing to abscess formation, but before localization is complete, the area should be incised to relieve the local tension and pain. The level of penicillin in the blood stream will prevent a spread of infection through the channels opened up by the incision. Thereafter the systemic penicillin may be discontinued as soon as the general condition of the patient merits it—usually three injections of 30,000 units each is the total amount of penicillin required. The local treatment is continued daily until the purulent discharge ceases, when the further treatment is the same as for a clean surgical wound. Such a procedure, however, could only be justified if the organism is sensitive to penicillin. This can be assessed by the progressive localization of the inflammation under the systemic treatment.

In this way greater economy in the use of penicillin can be achieved, the discomfort of repeated intramuscular injections is reduced, and the patient's convalescence is shortened. In addition it is suggested that a stronger scar and a better cosmetic result is achieved because the tension of the abscess is relieved before the overlying skin has become stretched and atrophic.—I am, etc.,

Ayr.

C. O. KENNEDY.

REFERENCE

Penicillin: Its Practical Application (Dermatological Section). Edited by Sir Alexander Fleming. London: Butterworth and Co. 1946.

Rubella in Pregnancy and Congenital Defects

SIR,—Because of the interest taken in this association this single case may be worth publishing. It was the mother's first pregnancy and resulted in a normal full-term delivery, birth weight, 5 lb. 9 oz. (2.5 kg.). The boy was born on Jan. 14, 1947, and was seen for the first time a month later at an infant welfare centre in South London, when his mother was having considerable difficulty in getting him to suck satisfactorily. He was found to have bilateral cataracts and a loud systolic murmur heard over the whole left chest; he was never cyanosed. He