Notes, Short Comments, and Answers to Correspondents.

SOLUBLE LEAD IN CASSEROLES.

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ATTENTION has already been drawn in the columns of THE LANCET¹ to the fact that casseroles made of glazed pottery ware sometimes yield appreciable amounts of soluble lead when treated with dilute solutions of organic acids. At the time when the former observations were made casseroles were rather a scarce commodity and those obtainable were chiefly of French make. During the last few months, however, casseroles have been coming on to the market in increasing number and variety, and as the presence of soluble lead in these vessels appears to be of some importance from the point of view of public health, further experiments have been made and specimens of several different makes of casserole examined.

In this country there is no standard test for the examination of glazed ware in the finished condition, but in Germany the official test is made by boiling a 4 per cent. solution of acetic acid in the vessel for half an hour; the sale of cooking utensils which yield any lead when thus treated is prohibited. In actual practice acetic acid is used for cooking purposes chiefly in the form of vinegar, and then, in this country at any rate, usually only in small quantities; whereas citric acid and also malic acid occur in a number of different fruits and vegetables which are often cooked in casseroles.

The acidity of a number of fruit juices is given by Leach² and expressed as citric acid; this acidity varies from 0.5 to 5.0 per cent. On this basis it was thought that if the test were made with a 1 per cent. solution of citric acid instead of with a 4 per cent. solution of acetic acid, the conditions would approximate more closely to those met with in practice. Some previous observations made with the two acids showed that the amount of lead extracted with 1 per cent. citric acid was greater than that extracted with 4 per cent. acetic acid. A few experiments made with malic acid gave results similar to those obtained with citric acid.

The Experiments Described.

The vessels examined were made of pottery ware, in some cases glazed on the inside only, and in others glazed both inside and out. Experiments had previously been made with casseroles of fireproof china, and these were found to be lead-free.³ The casserole was nearly filled with a measured volume of the acid solution, just sufficient margin being allowed for boiling. Under these conditions it was assumed that the whole of the internal surface of the vessel would come into contact with the acid, and the area thus exposed was calculated from the internal dimensions of the vessel. The casserole was covered with its lid and the solution was brought to the boil, and allowed to boil gently for half an hour. The amount of lead in the solution was then determined colorimetrically by precipitation as sulphide. If no coloration, or only a very slight coloration was observed when a portion of the solution was tested, the solution was concentrated to a small volume and again tested.⁴

Control experiments were made from time to time to ensure that the citric acid solution was lead-free. In one or two cases where the amount of lead yielded was considerable, the lead was also determined gravimetrically, by precipitation as sulphate, and this method gave results which confirmed those obtained colorimetrically.

The Results Discussed.

The results have been expressed as milligrammes of lead monoxide per square decimetre of the glaze, but in order that the amounts of lead extracted may be compared with the quantities found in contaminated waters, or other substances containing lead, the results are also given as parts of lead per 100,000 of the solution. The apparent discrepancy, suggested by a comparison of the two series of results, is entirely due to the fact that the vessels examined were not all of the same shape and varied from 100-1200 c.cm. in capacity; the ratio of the internal surface to the capacity is greater in the smaller vessels than in the larger. This ratio is also, to some extent, dependent on the shape of the vessel

—i.e., the internal surfaces of two casseroles of the same capacity are not necessarily equal. The results are shown in Table I. Casseroles of the same make are indicated by the same initial letter. D and E were from the same makers, but D were glazed both inside and out, and E were glazed inside only; the glaze did not appear to be quite the same in the two cases.

TABLE I.

—	Mg of PbO per sq. dm of glazed surface.	Parts of lead per 100,000 of the solution.	—	Mg of PbO per sq. dm of glazed surface.	Parts of lead per 100,000 of the solution.
French casseroles (A)			D ₁	1.7	1.5
A ₁	4.2	8.0	D ₂	0.85	0.7
A ₂	8.1	10.0	D ₃	2.7	1.7
A ₃	4.2	3.2	E ₁	17.4	13.0
A ₄	6.6	7.5	E ₂	2.1	1.2
A ₅	2.0	1.0	E ₃	19.0	20.7
English (B.C.D.E. & F.)			E ₄	16.1	10.0
B	0.28	0.22	F	Nil.	Nil.
C ₁	Trace	—	Dutch (G).		
C ₂	Nil.	Nil.	G ₁	1.0	0.5
			G ₂	2.8	1.7

The results indicate that the use of a glaze containing lead in a more or less soluble form is widespread and is not confined to one country or to one make. Out of the 18 casseroles for which figures are given in the table, only 3—viz., C₁, C₂, and F—can be classified as free from soluble lead, and these were sold by the makers as “leadless glaze.” This description suggests that some of the manufacturers are alive to the possible risks attached to the use of a lead glaze, but the fact that such a description is considered necessary might also be taken as further confirmation of the view that the use of a leadless glaze is the exception and not the rule.

There is considerable variation in the amount of lead extracted from different specimens of the same make of casserole. This may be partly due to faulty mixing of the glaze, but it is also probable that the resisting power of the glaze to the action of dilute acids is largely dependent on the temperature at which it is “fired,” as well as on the uniformity of the surface and its freedom from small cracks or flaws. It is to be hoped that E₁, E₃, and E₄ are to be regarded as exceptions, and that normally the results obtained would approximate to those obtained with E₂. Two other casseroles of this make, E₅ and E₆, were used for the experiments described below. The results obtained with these vessels (see Table II.) are more in conformity with that obtained for E₂ than with those obtained for E₁, E₃, and E₄. On subsequent treatment with 1 per cent. citric acid E₆ gave 1.7 mg. of lead monoxide per square decimetre of glazed surface. E₅ cracked in the first experiment, so could not be further tested. On the other hand, it is only fair to state that E₄ was purchased at a different time from the other vessels of this class, and was not obtained from the same retailer, so that it seems unlikely that it came from the same batch as E₃ and E₁.

Even if results of the order obtained with the E₁, E₃, and E₄ are to be regarded as exceptional, there is no means of knowing when and how frequently such exceptions are likely to occur. At the time of writing other specimens of this make of casserole are not available, so this matter cannot be dealt with further at present. The glaze of E₁ showed marked colour changes after treatment with the acid solution, but these changes were not observed with E₃ and E₄, though the glaze in these cases presented rather a roughened appearance. As a general rule the appearance of the glaze was very little affected at first, but if the treatment was repeated several times the glaze to some extent lost its gloss and sometimes became slightly iridescent, but its appearance did not suggest that the casserole had been subjected to anything more than fair wear and tear.

The results given in Table I. are in all cases those obtained for the first treatment with the acid solution, but if the experiment is repeated several times it is found that, if an appreciable quantity of lead was extracted by the first treatment, it is also extracted by each of the subsequent treatments. Although in some cases the first two or three treatments may suggest that the amount of lead extracted is decreasing, the amount often increases again if the treatments are continued and, with the exception of those cases where the amount of lead at first extracted was very small, no indication was obtained that a stage would be reached when all the soluble lead would have been extracted. In the case of E₁ and E₃ the amount of lead extracted in the second treatment was even greater than in the first, but E₄ gave rather less.

Experiments with Fruit and Vegetables.

In order to obtain a more exact idea of the quantity of lead which might be extracted during cooking, a few experi-

¹ THE LANCET, May 24th, 1919 (p. 905), June 7th, 1919 (p. 1002), May 15th, 1920 (p. 1078).

² Leach: Food Inspection and Analysis (2nd edition).

³ See Masters, The Analyst, May, 1919, p. 615.

⁴ For further details of the method employed see “Applied Chemistry,” Tinkler and Masters (Crosby Lockwood).

ments were made in which fruit and vegetables were cooked in the casseroles. 100 g. of the raw material were used for each experiment. The cooked food was evaporated to dryness in a porcelain dish and, after the addition of sulphuric acid, ignited. The sulphated ash was extracted with ammonium acetate and the lead in the filtrate determined colorimetrically. A control experiment was made with the raw food material and all the reagents used in the test experiment. As in this case the area of glazed surface exposed could not be readily calculated, the results are given as milligrammes of lead per 100 g., the raw material—and this also represents parts of lead—per 100,000. With the exception of E₁ the casseroles used in these experiments were new ones which had not received any previous treatment.

The Results Compared.

In comparing the results of Table II. with those of Table I. it should be noted that the conditions in the two series of experiments are not identical. The acidity of the fruit or vegetable is, in some cases, greater than that of the citric acid solution; but whereas in the first experiments the whole internal surface of the casserole was in contact with the acid solution, this was not the case when fruit or vegetable was used; a portion only of the surface, in some cases practically only the bottom of the vessel, was in contact with the food material in these experiments. It

TABLE II.—*Lead Extracted from Casseroles by Fruit and Vegetables.*

Casserole.	Fruit or vegetable. 100 g.	Acidity (as citric acid) per 100 g. of raw material.	Mg. of lead extracted.
A ₆	Tomato.	0.37	1.8
E ₅	Lemon pulp and juice.	2.0	0.75
E ₆	Lemon juice.	3.7	2.9
(E ₁)	" "	3.7	25.0
A ₇	" "	3.7	3.4
A ₈	Rhubarb stalks.	1.1	1.0
D ₄	" "	1.1	1.5

would, of course, be possible nearly to fill the casserole with fruit or vegetable, and this is often done in practice, but for experimental purposes the difficulties attendant on evaporating and igniting a large bulk of food material had to be taken into consideration.

If due allowance be made for these differences, the results given in Table II. may be regarded as confirming those of Table I. The variations observed in the amount of lead extracted from different specimens of the same make of casserole with citric acid are also shown with some of the casseroles in Table II.

The actual amounts of lead extracted from the casseroles are not in themselves very great, but as water containing 1/10 gr. per gallon (= 0.14 parts per 100,000) or even 1/20 gr. is stated to produce injurious effects,⁵ the quantities of lead obtained in the experiments can hardly be regarded as negligible; the results demonstrate that the possibility of food cooked in these casseroles becoming contaminated with lead is by no means an unlikely one, especially when they are in regular use. The regulations at present in force with regard to the use of lead glaze appear to be chiefly directed to safeguarding the worker who has to prepare and apply the glaze, and the possibility that the general public might suffer through its use on cooking utensils does not appear to have been sufficiently recognised. In the interests of public health it would seem advisable that the use of a lead glaze for cooking utensils should be prohibited, but if this is not feasible, then, at any rate, a standard test might be adopted, to which the vessels could be submitted before coming on to the market.

The Advantages of a Leadless Glaze for Cooking Apparatus.

It might be suggested that the use of a leadless glaze would increase the cost of production, but a comparison of the retail prices charged for the casseroles used in the experiments showed that the leadless glaze casseroles worked out cheaper than the others. For example, three casseroles were bought on the same day from the same retailer, the price of each casserole being 2s. 6d. The capacities of the vessels were as follows: French casserole (A) = 750 c.cm.; English casserole (E) = 650 c.cm.; leadless glaze casserole (C) = 1250 c.cm. The price charged for a French casserole having a capacity of 1250 c.cm. was 3s. 3d. The appearance and finish of the leadless glaze casseroles were not considered to be in any way inferior to those of the other makes. Specimens of both C and F have been in use in the kitchens of the department for some months, and, so far, have given no cause for complaint.

In the event of a standard test being adopted it would be advisable to insist that specimens of each batch should be examined, as single tests cannot be regarded as reliable; in

any case this method of dealing with the difficulty should be regarded only as an unsatisfactory alternative to the compulsory use of a leadless glaze for all cooking ware.

Amongst the latest additions to the materials used for cooking utensils is fireproof glass. Specimens of two different makes of this glass have been examined and yielded no soluble lead when treated as described above. The vessels were also tested as regards their powers of withstanding sudden changes of temperature and appeared to be satisfactory in this respect. It seems possible that the housewife may find in the future, as the scientist has done in the past, that glass is capable of many modifications to suit a variety of different purposes.

PUBLIC HEALTH IN JAMAICA.

THE population of Jamaica, as estimated for the year 1918, was 895,578, and the birth- and death-rates were 34.1 and 33.0 per 1000 respectively; the former ratio is exactly the same as for 1917; the death ratio is considerably higher than in any of the preceding four years, during which it ranged between 20.4 in 1914 and 26.9 in 1917; the marked increase in 1918 was due to influenza. It is much to be regretted that 68.6 per cent. of the births registered were illegitimate, and that "this phase of the country's life continues to show an upward and unsatisfactory tendency." For the fifth year in succession the record of the previous highest rate has been broken; the lowest rate was in St. Andrew's parish (60.12), while seven parishes had ratios over 70 per cent. and Port Royal had 79.41 per cent. The total number of illegitimate births was 20,990. The general death-rate of 33.0 per 1000 was much exceeded in several parishes: in St. Andrew it was 43.6, in St. Catherine 41.3, and in St. Thomas 40.9, being in each case considerably higher than the birth-rate; the small parish of Port Royal had the low ratio of 11.0 per 1000. Influenza caused 5038 deaths, in addition to 839 due to pneumonia consequent on the former disease; but it is considered by Mr. David Balfour, the Registrar-General, that the epidemic was responsible for a great many more deaths than were actually registered as having been caused thereby. The chief fatal diseases (besides influenza) were fevers, not otherwise defined (5234), convulsions (2079), phthisis and pulmonary tuberculosis (1703), dropsy (1222), and "old age" (1829). It is, however, unfortunately the case that in 72.9 per cent. of the deaths registered during the year the causes were not medically certified.

HOSPITALS AND DISPENSARIES IN BENGAL.

DURING 1918 there were 760 medical institutions of various kinds working under the Bengal Government, of which 22 were in the city of Calcutta. At these latter hospitals and dispensaries the number of patients treated amounted to 439,806, of whom 34,703 were in-patients; this shows an increase on the previous year in the number of in-patients, due chiefly to influenza. The total accommodation available was for 2438 patients, being an increase of 111 beds over that of the year preceding; but most of these were in temporary buildings improvised to meet the emergency of the influenza epidemic. The superintendent of the Campbell Hospital points out (as is often recognised at home) that there is great need for some home or refuge for incurables, who use up accommodation in the hospitals that would be more suitably occupied by surgical patients and cases of acute disease. More nurses are required, especially at the Campbell Hospital just mentioned, "where the real nursing is done by students, helped by ward coolies and other menials, supervised by the nurse in charge." During the influenza epidemic 16,784 cases were treated in the city hospitals; of these 2777 were in-patients, with 849 deaths. Cholera also prevailed to some extent, 843 cases being admitted to hospital, of whom 207 died. Sir Leonard Rogers's treatment is in use in all the hospitals, and the results are steadily improving. Between February and September there was some plague in the city, 77 cases being treated in hospital, with 46 deaths.

In Bengal, outside of Calcutta, as many as 6,368,171 persons received medical aid at the different hospitals and dispensaries (numbering 738), of which total 479,957 were treated in special hospitals for the police, public works, and other Government departments, railway hospitals, &c., and the remainder in various charitable institutions. Nearly one-third of these patients (1,877,753) were cases of malaria, being 258,514 more than the number treated for this disease in 1917. The number of cases of influenza was 134,057; of these 1526 were in-patients, amongst whom were 339 deaths. Colonel J. K. Close, I.M.S., who presents this report as Officiating Surgeon-General with the Government of Bengal, summarises the financial position of the various hospitals and dispensaries and the structural improvements that have been or are in course of being undertaken. The long-expected increase of pay for sub-assistant surgeons was granted, with effect from June 1st last, the new scale being Rs. 50 per month, rising to Rs. 120. It is to be hoped that this will remedy a long-existing grievance. It is gratifying to note the large sums provided by local subscriptions, and

⁵ Notter and Firth: *Theory and Practice of Hygiene* (3rd edition).

especially the liberality of the Raja Roy Bahadur, of Lalgola, in support of the Berhampore Hospital, and of Raja Acharji Bahadur and other noblemen and gentlemen towards the Mymensingh Sadar Hospital rebuilding and extension fund. This liberality can only be described as princely.

WANTED, A HOME.

To the Editor of THE LANCET.

SIR,—A patient of mine, a lady, is suffering from disseminated sclerosis, she is practically confined to bed. Could any of your readers help me to find a home for her either in a nursing-home or in some doctor's or nurse's house? She can only pay 3 guineas a week. It must be in London.

June 11th, 1920.

M.D.

FOOD CONDITIONS IN AUSTRIA.

THE following interesting paragraph is taken from the *Economic Review* (June 16th):—

Dr. Loewenfeld, an Austrian Secretary of State, has stated in the National Assembly that he hopes to be able to increase the rations, which for some time have been reduced, to their old level.

The flour ration is to be increased immediately, and the bread ration in the near future. In any case, Austria may count upon an improvement in the conditions of existence. (*Neue Freie Presse*, May 15th.)

Hitherto we have heard little else than that famine conditions prevailed in Austria with a probable outlook of food deficiency diseases, and delegates were sent out from our scientific staffs, of which Dr. Harriette Chick was principal, with the view of pointing out the importance of including in the diet, as far as possible, accessory food factors. Humanity will welcome the relief that is promised in the above statement.

THE RANYARD NURSES.

THE nursing branch of the Ranyard Mission supplies nurses for the sick poor in their own homes in various parts of London, and according to the report for the year ending 1919 there were nursed during the year 395 maternity, 4430 medical, and 5617 surgical cases. The total number of visits paid by nurses was 221,198 and by sisters 5260. At minor ailment centres and dispensaries 211,916 visits were made, and the home visits to patients attending centres and dispensaries amounted to 1299. The society is supported by voluntary contributions, by grants from public bodies, and by local payments towards the cost of the nurses in the districts, but for the year under notice there is a deficit on the nurses' fund of £2800, largely due to a necessary increase in the salaries. The equipment and maintenance of a nurse costs roughly £140 a year. Subscriptions should be sent to Ranyard House, 25, Russell-square, W.C.1, or to Lord Kinnaid, the treasurer, c/o Messrs. Barclay and Co., 1, Pall Mall East, London, S.W.1.

DEMORALISATION BY KINEMA?

THE question of the cinematograph and its influence on the minds of children is brought to the fore by a case of the suicide of a 15-year-old boy at Ovingdean, near Brighton, the son of a coastguard. He was left in charge of the home and a little brother and sister, and on the parents' return he was found dead with a wound in the chest. He was nude except for a pair of pants and socks, and the big toe of the right foot was hitched in a piece of string attached to the trigger of a miniature rifle, which had been fastened to a chair, and on a paper were the words, "Good-bye all, Harry." No cause for suicide could be suggested, but the father said that his son went to the "pictures" every Saturday and that he read a good deal. The coroner, Mr. G. Vere Benson, said that he had come across cases in which boys had undoubtedly taken their own lives, either intentionally or accidentally, through imitating what they had seen at the cinemas. No particular picture or story was known to have inspired this boy, but it seemed probable that he got his obsession from that source. It will be generally agreed that no picture should be allowed to be displayed nor stories allowed to be printed and sold which are likely to be detrimental morally. The present censorship deals with offences against conventional respectability, but it is a more difficult problem to prevent films which may be of unfortunate influence to unstable minds. In this case the coroner regarded the lad as unbalanced by excitement, and a verdict of suicide during temporary insanity was returned. In Germany the censorship—abolished in the early days of the revolution—was recently reimposed. Films shown at performances to which young people under 18 are admitted are to be banned if they are considered likely to have a harmful effect on the moral, intellectual, or physical development of adolescents, or to cause excessive emotion. "Children under six are to be excluded from all performances" is the concluding sentence in an interesting note from the *Times* Correspondent in Berlin.

AN APPEAL FOR HOMELESS CHILDREN.

IN connexion with the Founder's Day celebrations of the Dr. Barnardo's Homes, which will be held on June 26th at Barkingside, Essex, an appeal is being made for half-crowns "to feed the largest family in the world." Like all charitable institutions the financial needs of Dr. Barnardo's Homes have increased heavily in consequence of the war, and with 7300 children to feed the responsibility of the management is consequently very great. These homes have been responsible for rescuing something like 89,000 homeless children, and during the war nearly 11,000 Barnardo boys were fighting in the navy or army. Half-crowns should be sent to the honorary director, 18 to 26, Stepney-causeway, London, E.1.

THE EXTRA PHARMACOPOEIA OF MARTINDALE AND WESTCOTT.

THE new edition, published this week by H. K. Lewis and Co., Ltd., of Vol. I. of the Extra Pharmacopœia by Martindale and Westcott will be welcomed because since the last issue of five years ago much has happened in pharmacy and pharmacology, and considerable additions and alterations have been called for consistent with the well-known developments arising out of the great war. We understand that Vol. II., dealing mainly with analytical, bacteriological, and laboratory questions generally, will be issued shortly. The new issue is remarkably up to date, summarising not only the altered position of affairs in many directions of interest to the consultant and general practitioner, while the position of the pharmacist, particularly in regard to the manufacture of those medicaments the supply of which hitherto was from abroad is fully set out. There are interesting features in this new edition which invite later comment. The bibliography relating to the records of examples of treatment published in medical journals is thoroughly done and alone affords a valuable source of reference to medical men.

THE Gloucestershire Branch of the British Red Cross Society has presented to the county their V.A.D. Hospital, Standish House, for the treatment of tuberculous patients. Ex-Service men are to have preference over other candidates for admission.

THE Students of the Royal Free Hospital are arranging a fair, to be held at the hospital on July 10th, in aid of the Hospital Appeal Fund. There will be various entertainments, including a Thé Chantant, and stalls for the sale of garden and dairy produce, lingerie, jumpers, and household ware. Any offers of help will be most gratefully received, and should be sent to Miss Longbottom at the Royal Free Hospital, Gray's Inn-road, London, W.C.1.

BOOKS, ETC., RECEIVED.

- BAILLIÈRE, TINDALL, AND COX, London.
 War against Tropical Disease. By A. Balfour, M.D., Director-in-Chief of the Wellcome Bureau of Scientific Research. Pp. 220. 12s. 6d.
 Mental Deficiency (Amentia). By A. F. Tredgold, M.D. 3rd ed. Pp. 531.
 The Mycetozoa: Parasitic Mycetozoa in Tumours. By J. Jackson Clarke, M.B. Lond., F.R.C.S. (Part V. of Protozoa and Disease). Pp. 138. 15s.
 Surgical Therapeutics and Operative Technique. By E. Doyen. English edition in collaboration with H. Spencer-Brown, M.B. Vol. III., Regional Surgery (continued): Operations on the Abdomen. Pp. 811. 45s.
 BALE, JOHN, SONS, AND DANIELSSON, London.
 Malaria at Home and Abroad. By S. P. James, Lieutenant-Colonel, I.M.S., retired. Pp. 234. 25s.
 Air Sickness: its Nature and Treatment. By Prof. R. Cruchet and Prof. R. Moulinier. With Preface by Dr. V. Pachou and Introduction by Wing Commander Martin Flack, M.B. Translated from the French by J. R. Earp, M.R.C.S. Pp. 96. 5s.
 CHURCHILL, J. AND A., London.
 Pharmacology. By D. Cow, M.D. Pp. 132. 7s. 6d.
 Dentistry. By B. Underwood, M.B., B.S. Lond. Pp. 216. 9s. 6d.
 A Manual for Midwives. By C. N. Longridge, M.D. Vict., and J. B. Banister, M.D. Camb. 3rd ed. Pp. 346. 7s. 6d.
 EVANS BROS., Montague House, Russell-square, W.C.
 The Science of Eating. By Alfred W. McCann. Pp. 408.
 FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
 Plastic Surgery of the Face. Based on Selected Cases of War Injuries of the Face, including Burns. By Major H. D. Gillies, R.A.M.C., and Others. Pp. 408. £3 3s.
 Studies in Neurology. By H. Head, M.D., F.R.S., and Others. Two vols. Pp. 862. £3 3s.
 HEINEMANN, WILLIAM, London.
 Venereal Diseases: their Clinical Aspect and Treatment. With an Atlas of 106 colour and 21 half-tone illustrations. By J. E. R. McDonagh, F.R.C.S. Pp. 419. £3 3s.
 Selected Lectures and Essays, Including Ligaments, their Nature and Morphology. By Sir John Bland-Sutton. 4th ed. Pp. 320. 15s.
 MACMILLAN AND CO., London and New York.
 The Treatment of Syphilis. By A. S. Baketel, M.D. Pp. 167. 13s.
 Our Nervous Friends: Illustrating the Mastery of Nervousness. By R. S. Carroll, M.D. Pp. 258. 12s.