

is either active or quiescent ; in the former case treatment is required. As pleurisy with effusion is included under this heading it would seem that non-clinical tuberculosis must mean non-sputum-positive pulmonary tuberculosis. If this is so then Dr. Burrell is teaching that clinical tuberculosis commences when tubercle bacilli appear in the sputum—a sorry postulate for any clinician to adopt, and definitely a retrograde teaching.

The final point to which I must allude is the prominence given to Swiss treatment in the advice. Dr. Burrell admits that in Swiss sanatoriums the patient is apt to live carelessly, that sanatorium discipline on the whole is bad, that post-tuberculous neurasthenia is more common in Swiss-treated than in English-treated cases, and, finally, that recovery is no quicker in Switzerland, and costs more. After these admissions he still advises Swiss treatment, particularly in early and hopeful cases. There are many excellently managed private sanatoriums in Britain in charge of capable tuberculosis physicians, and I wish to make it quite clear that no patient has anything to gain by leaving Britain in order to have tuberculosis effectively treated. In fairness to our British sanatoriums, however, practitioners should not take Dr. Burrell's advice and send their early and hopeful cases to Switzerland and the other cases, plus the Swiss-treated failures, to British sanatoriums. It is the duty of the family doctor to advise the best treatment for his patient, and not to pander to any popular ideas his patient may have on Swiss treatment. Such popular ideas are, after all, purely the result of intensive advertising, to which Dr. Burrell is now adding his quota. Any psychological reactions caused by advocating what is best for the patient rather than what he wants may safely be left to a capable English sanatorium physician to deal with.—I am, etc.,

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Clinical Tuberculosis Officer to the
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May 2nd.

Raw and Pasteurized Milk

SIR,—I have read with interest the leading article in your issue of May 6th (p. 792), "Milk and Pasteurization," giving a review of Bulletin 5 of the Hannah Dairy Research Institute, especially as I find comments in Bulletin 5 on a paper of my own (*Proc. Roy. Soc. Med.*, March, 1932). It is on these comments that I, in turn, would also comment.

The authors of Bulletin 5 state:

1. That the children I wrote about were on high-grade raw milk: this is imagination on their part, as, though some were on Grade A (T.T.), the great majority were on ungraded milk which was produced from a farm medically inspected from time to time and from which samples were tested in laboratories at frequent intervals for tubercle bacilli, etc. The 750 boys I refer to in that paper were on this milk continuously for six and a half years, and incidentally no case of tuberculosis occurred in any boy after admission during that time. It was observation of the amazing change in the teeth of these children which prompted my investigation, which in itself is a comparison.

2. They also state that no comparable data were given of the effects of raw and pasteurized milk respectively on teeth. This also is incorrect, for the following reasons. (a) In my Tables I and VI, which show the incidence of caries in second permanent molars (the specific tooth developing and erupting in those age groups), is found an exact comparison of the incidence of caries in those teeth with raw and pasteurized milk respectively, when commenced at such late ages as from 8½ to 10 years. It shows a ratio of eleven carious teeth with raw milk to fifty-nine with pasteurized milk, in spite of an average age difference of 1½ years in favour of pasteurized milk. (b) My Tables II and VI give the ratio of caries in these same teeth as eleven carious teeth with raw milk to seventy-seven with pasteurized milk plus cod-liver oil, though, as I state, the seventy-seven is not meticulously accurate on

account of a slight age difference of 1½ years in favour of raw milk. (c) There is the strongest of inferential evidence in the comparison of my children brought up (from their earliest years) on raw milk and having no caries (Tables III, and, in effect, Table IV) with those of the rest of the United Kingdom, most of whom are presumably brought up on pasteurized or sterilized milk, and of whom 90 to 95 per cent. show caries with an average of 6.8 carious teeth per head at age 5, as Dr. Wheatley showed.

I can only conclude that the commentators, since they were not dental surgeons, for whom my paper was primarily written and so contains technical dental terms, have misunderstood or missed the comparisons, which are clear enough to dental surgeons, as they have often commented on them. Indeed, a partial reproduction of two of my tables in Bulletin 5 omits the essential point on which comparison rests. The above no doubt explains the rather scathing remarks made by the Hannah Dairy Research Institute on Middleburgh's work, which they also refer to ; he, being a dental surgeon, appreciated the comparisons at once, and was perfectly correct in drawing such inferences and making such statements as he did. I may add that a considerable amount of evidence confirmatory of my thesis has come to hand since my original paper was written, and some has been published also by dental research workers in the United States of America. No one, so far as I know, has ever suggested that one should rely solely on raw milk after weaning for the proper development of the bones and teeth of the growing child, but only that it should form *part of the diet*; the remainder, of course, should be of an adequate and suitable nature, and notably so from the time when the deciduous cheek teeth erupt. I notice that Bulletin 5 rather decries the value of the work of McCandlish and Black on calves, without taking into account the possibility that those calves fed on pasteurized milk may thereby have had their resistance so lowered as to render them more subject to infection, and died on that account. As far as teeth are concerned, the alteration in the equilibrium between the calcium and phosphate ions on pasteurization may be an important factor in the chemical composition and physical properties of enamel.

As I have at no time advocated the use of raw milk other than Certified or Grade A (T.T.) and (in later papers) from double intradermally tested animals, I should be grateful for information concerning any overwhelming evidence in favour of pasteurization in the case of cleanly produced milks from healthy animals and milkers—such, for instance, as in the case of certified milk—as this too, of course, is part of the "liquid milk supply."—I am, etc.,

The London Hospital Dental
School, E.1, May 6th.

EVELYN SPRAWSON.

Surgery in the Treatment of Haematemesis

SIR,—I have read with interest and profit Professor D. P. D. Wilkie's article in your current issue upon the indications for surgery in peptic ulcer. In it he quotes certain of my figures on the mortality from haematemesis (*Lancet*, July 23rd, 1927, and October 1st, 1932).

The analysis of 578 cases admitted to the medical wards of the General Hospital, Birmingham, because of haematemesis during the period 1902-31 showed a total mortality of 10.7 per cent. The males had a death rate of 16.2 per cent. and the females 6.8 per cent. ; there were negligible differences between acute and chronic cases. In six cases operation was performed for the treatment of active haemorrhage after medical treatment had failed. In the earlier series (1902-25) four patients had a gastro-enterostomy performed—2 died ; in the later series (1926-31) two cases were operated upon after a blood transfusion. In the first a small gastric ulcer was found and invaginated,