

Letters to the Editor

CREATION'S ORIGINAL DIET

Dear Editor,

I refer to the letter by Alex G. Stewart.¹ He states:
'If he (mankind) does not occasionally eat meat or animal produce (for example, milk, cheese, etc.) then he usually suffers from B₁₂ deficiency anaemia. There is no other dietary source for man, or woman.'

My supermarket extols the virtues of mushrooms claiming that they contain vitamin B₁₂.

I cannot locate the source, but think I can recall a claim that the comfrey plant also contains vitamin B₁₂. It was claimed that New Zealand racehorses are fed on comfrey, which is the reason they can outrun Australian horses (*sic*).

John Woodford,
 Cleveland, Queensland,
 AUSTRALIA.

The Author Replies ...

Despite the claims of the supermarket patronised by John Woodford it appears that vitamin B₁₂ is entirely absent from all foods of land plant origin. In the two standard food tables I have now been able to consult the only record of B₁₂ in plants is in foodstuffs prepared with oil or eggs² and in seaweed.³ Unfortunately comfrey is not mentioned, but mushrooms appear in both tables and do not contain any B₁₂. The two tables list 72 cereals and cereal products, 39 vegetables, 14 herbs and spices, 41 fruits, and 15 nuts;⁴ 10 cereals, 4 roots and tubers, 13 legumes, 8 nuts and seeds, 54 vegetables and products, and 28 fruits,⁵ some of which are the same species as in McCance and Widdowson. There is a consistency across the tables that denies the possibility of B₁₂ occurring in such foods, or their derivatives, including comfrey, if uncontaminated by animal products or soil. Chanarin⁶ makes the point that periodic reports of small amounts of Vitamin B₁₂ in alfalfa, pulses, turnip greens, comfrey, etc., are explainable in terms of soil contamination. Nine species of seaweed from Japan all contain adequate amounts of the vitamin.

B₁₂ is made by microbiological fermentation in soil, sea and animal intestines, ruminants manufacturing their own in the presence of adequate cobalt,⁷ and on stored food such as ground nuts.⁸ All alcoholic beverages, including liqueurs and vermouths but excluding spirits, have some B₁₂ in them, as befits their fermentation content, and the mycoprotein food quorn (*Fusarium graminearum*) also contains some.⁹ B₁₂ is found in every meat or meat product

including fats and offal, milk (cow, goat, sheep and human) and cheese and eggs (hen or duck). All fish and seafood also have adequate levels: nine white and cartilaginous fish, 10 fatty fish, five crustaceans and five molluscs.¹⁰ This is acquired from bacterial and algal synthesis. Vitamin B₁₂ is found in both sea and fresh water as a consequence of microbiological content and from soil runoff.

Not too much is known about vegetarians' B₁₂ diet. Vegetables provide none, but the water used to prepare them and bacterial flora acquired on pre-prepared food may add it. Milk, yoghurt and eggs will certainly provide it. Such a diet may have a reduced but adequate amount of the vitamin. Chanarin studied a vegetarian who had a daily intake of 1.3 and 1.6 µg over two 24-hour periods.¹¹ Maximum absorption at any one meal is 2-3 µg, probably due to saturation of receptors. Stewart *et al.* studied Indian lactovegetarians. Over one week they ate a total of 3.5 µg (0.5 µg/day).¹² The normal daily requirements reported by Stewart *et al.* are 2-4 µg/day, with 1.6-6 µg/day being absorbed. The liver stores contain enough for several months, so even in lactovegetarians deficiency symptoms are uncommon. Vegans, who avoid all animal products including eggs and milk, tend to suffer only from neurological complications, since their high folate intake will protect them from anaemia. They and strict Hindus can have reduced plasma levels and may have sore mouths and tongues.¹³

It would seem sensible that in Eden milk and eggs would be eaten. Hens produce many more infertile than fertile eggs, and seem designed as providers of human food. Interestingly, animals kept on low B₁₂ diet develop, along with poor growth and hair or feathers, reproductive problems, presumably because of the lack of B₁₂ in their own egg yolks. Monkeys seem to be the only animals which develop a human-like paralysis.¹⁴

So, if Adam and Eve ate eggs, drank milk and alcoholic beverages, used seaweed for ice-cream (or other food products) and did not mind about soil contamination of their diet there is no reason to suppose they would suffer from vitamin B₁₂ deficiency.

Alex G. Stewart,
 West Kirby, Wirral,
 ENGLAND.

REFERENCES

1. Stewart, A. G., 1992. Creation's original diet. CEN Tech. J., 6(2):196-197.
2. Holland, B., Welch, A. A., Unwin, I. D., Buss, D. H., Paull, A. A and

- Southgate, D. A. T. (eds), 1991. McCance & Widdowson's The Composition of Foods, 5th edition, The Royal Society of Chemistry, Cambridge, United Kingdom.
3. Food composition tables for use in East Asia, FAO, Rome, 1972.
 4. Holland *et al.*, Ref. 2.
 5. Ref. 3.
 6. Chanarin, 1973. Dietary deficiency of vitamin B₁₂ and folic acid. *In: Nutritional Deficiencies in Modern Society*, A. N. Howard and I. N. Baird (eds), Newman Books, London, pp. 17–26.
 7. Rosenthal, H.L., 1968. Vitamin B₁₂: Deficiency effects in animals. *In: The Vitamins*, vol. II, 2nd edition, W.H. Sebrell and R.S. Harris (eds), Academic Press, New York.
 8. Smith, E. L., 1965. Vitamin B₁₂, 3rd edition, Methuen, London.
 9. Holland *et al.*, Ref. 2.
 10. Holland *et al.*, Ref. 2.
 11. Chanarin, ref. 6.
 12. Stewart, J. S., Roberts, P. D. and Hoffbrand, A. V., 1970. *Lancet*, 1970 (2):542–545.
 13. Davidson, S., Passmore, R., Brock, J. F. and Trueswell, A. S., 1979. *Human Nutrition and Dietetics*, 7th edition, Churchill Livingstone, Edinburgh.

MOON DUST

Dear Editor,

Your article 'Moon dust and the age of the solar system'¹ disappointed me on three counts as follows.

- (1) Why are there omitted references to the influx to earth of micrometeorites in quantities greater than Pettersson's 14 million tons per annum, such as:—
 - * McCracken, C. W., Alexander W. M. and Dubin, M., 1967. Direct measurement of the mass distribution and time variations in the flux of small particles. *In: Hawkins, G.S. (ed.), Meteor Orbits and Dust*, NASA, Washington D.C., pp. 259–270 (214 million tons per annum).
 - * Nazarova, T. N. *et al.*, 1958. Rocket and satellite investigations of meteors. **Comite Speciale de l'Anne Geophysique International**, Moscow (290–365 million tons per annum).
 - * Cassidy, W. A., 1964. Cosmic dust. *Science*, **144**: 1475–1477 (Ocean sediment analysis — 365 million tons per annum; Low altitude atmospheric sampling — 2400 million tons per annum).
- (2) In the important issue of the focussing factor in the conversion of earth influx to the corresponding moon influx, it is quite inadequate to state that the moon's smaller surface area apparently is irrelevant (p. 27), without giving reasons why this is so. Can a reference be supplied where these reasons are set out?
- (3) In the presentation, the evolutionists' case is **apparently** supported from observed data, but no statement is made that this can only be illusory, in the light of so much other evidence for a young solar system.

Otherwise the article gives a wise warning to creationists on moon dust.

C.L. Prasher,
Brighton, East Sussex,
UNITED KINGDOM.

The Authors reply ...

First, thanks for bringing those additional three references to our attention. We missed those in our survey of the literature, which was nonetheless already fairly extensive. There is a limit to how many papers one has to look at before reaching some sort of conclusion on an issue. In any case, there was no bias on our part to ignore results greater than Pettersson's figure. However, the emphasis had to be on more recent results that superseded earlier estimates. Indeed, it can be shown that for each of the three references you supply and the estimates they present there are more recent papers with more recent determinations using the same measurement method in each case. All of the more recent determinations by each method give figures lower than Pettersson's estimate and the estimates in the three papers you cite. Again, the omission of those three papers had nothing to do with any bias, but was merely because we didn't have those papers to add into our treatment of the influx measurements.

Readers will be interested to know that just to hand is a paper in which two U.S. scientists claim a direct measurement of the earth's cosmic dust influx.² From examination of hyper-velocity impact craters on the space-facing end of the Long Duration Exposure Facility satellite, they calculated an influx rate of 40,000 (±20,000) tonnes per year of dust particles in the range 10⁻⁹ to 10⁻⁴ grams. This result only serves to reinforce the earth influx rate we reported in our paper, and hence the lunar influx rate.

On the issue of the focussing factor in the conversion of the earth influx to the corresponding moon influx, there was no intention to give the impression that we were glossing over why the moon's smaller surface area appeared to be irrelevant. It appeared to us from all the references we had before us that the scientists concerned did not take into account the size differences between the earth's and the moon's surface areas when doing their calculations. Thus this is the reason for our saying that this factor appeared to be irrelevant. We could find no explanations for this and hence the reason why we did not set any out. As for references, all we could point to would be all those references where authors likewise ignore the moon's smaller surface area in their calculations. We had no reason to question why all these authorities considered the moon's smaller surface area as being irrelevant.

Finally, we thought we had said enough to imply that the observed data only apparently supported the evolutionists' case. Perhaps we needed to make a stronger comment lest we be misunderstood. There is no way that we want to leave the impression that the moon dust provides evolutionists with evidence for their claimed age for the moon—such is certainly not the case, even with their false uniformitarian