# Re: Topper Site dates, people in North America 50000 years ago

***Source:*** http://sci.tech−archive.net/Archive/sci.archaeology/2004−11/1754.html

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***From:*** Martyn Harrison (*nospam_at_spammers.of.the.world.unite*)
***Date:*** 11/25/04

Date: Thu, 25 Nov 2004 18:48:53 GMT

Apparently on date Thu, 25 Nov 2004 07:12:12 GMT, "zolota"
<zolota3@REMOVEshaw.ca> said:

*>"Martyn Harrison" <nospam@spammers.of.the.world.unite> wrote in message*
*>> Apparently on date Tue, 23 Nov 2004 01:31:31 GMT, "zolota"*
*>>>"Eric Stevens" <eric.stevens@sum.co.nz> wrote in message*
*>>>>>>>>*
*>>>> I can't give you a definitive answer on this. I suggest you ask Thomas*
*>>>> Higham at thomas.higham@archaeology−research.oxford.ac.uk . See*
*>>>> http://www.c14dating.com/ . No, I'm not being facetious. He's a New*
*>>>*
*>>>Your reference claims to be able to use C14 on meteorites, Can you explain*
*>> I think I can, because it is good science. Cosmic radiation fills space*
*>> with a*
*>> concentration diminishing with distance from the sun.*
*>>*
*>> A photon of cosmic radiation with the correct energy value, striking a*
*>> nitrogen*
*>> atom, will convert it into C14 (an atom of nitrogen with the atomic number*
*>> of*
*>> carbon).*
*>>*
*>> On the surface of earth, cosmic photons with the energy required to do*
*>> this are*
*>> absorbed by the upper atmosphere − basically the nitrogen higher up will*
*>> absorb*
*>> them all, and turn into C14. These photons won't usually reach the*
*>> surface.*
*>>*
*>> Out in space, nitrogen atoms are liable to be struck by suitable photons*
*>> at any*
*>> time by chance, it's only a matter of when.*
*>>*
*>> An object floating about in space will have a balanced N/C14 ratio. The*
*>> rate at*
*>> which C14 reverts to N depends on chance and the concentration of C14*

*>> present,*
*>> i.e. the less C14 there is, the slower it will decay. The solar radiation*
*>>*
*>> dunno what the change rates might be.) Doesn't matter a lot how much of*
*>> the object is N or C14, of course.*
*>>*
*>> 3) Over a half life of 5000 years or thereabouts, the meteorite will halve*
*>> it's*
*>> quantity of C14, converting it back into N, until it is just like an earth*
*>> rock*
*>> in this regard at some age which is probably longer than 50,000 years but*
*>> I*
*>> don't have numbers on that.*
*>>*
*>> 4) So long as the meteorite has some level between the maximum and minimum*
*>> ratio of C14, the length of time it has been lying on the surface of earth*
*>> can*
*>> be estimated.*
*>>*
*>> Hope this makes it clearer.*
*>*
*>It does not. A meteorite in free space can contain carbon that would be*
*>mostly C12 and perhaps C13, i'm not sure. Nitrogen would not be part of the*

The C12 is confusing this issue. The atmosphere contains carbon dioxide, and this will consist of a mixture of carbon (ordinary C12) and an isotope C14 which acts like carbon. When a living thing absorbs carbon dioxide, some will be C12 and some will be C14.

In a meteorite, nothing is being absorbed and the C12 plays no part in this. Instead, the meteorite contains Nitrogen, some of which can be converted by cosmic radiation into C14, and the C14 will beta−decay back into Nitrogen spontaneously.

*>meteor unless in a compound like a nitrate or ammonia. As for your statement*

Nitrogen is just an element to be found all over the universe, it's mundane, not very reactive, rocky material will normally have some. Planets are swathed in the stuff. Seven protons, seven neutrons, atomic number seven, RAM of 14.

*>of C14 in the meteor converting into N14 and subsequently reverting C14, I'm*
*>calling bullshit. There is no logical reason for a deep space object to*
*>contain C14 in the first place.*

My statement is N is converted into C14, and reverts back to N. N14 is just "nitrogen", by the way, it's not an isotope. You could refer to it as "N" instead.

You may think it is bullshit, but had you spent five minutes looking on the internet you might have come across sites like this:

http://science.howstuffworks.com/carbon−141.htm

*>Given that the literature does seem to suggest that C14 can exist in meteors*
*>I must accept that it exists, but I find your explanation to fall short of*
*>believable.*
*>*
*>There is either a natural amount of nitrogen in meteors or they are able to*
*>absorb it from the solar wind. which is it?*

It's quite simple. Nitrogen is an ordinary element, seventh on the periodic table, not rare or unusual. When exposed to raw solar radiation, some of it will eventually be converted into C14 which is basically Nitrogen with a proton replaced with a neutron to have the RAM of Nitrogen (14) but the atomic number of Carbon (6).

C14 is unstable and reverts back to N over time, with a half life of about 5000 years without help. I know of no way rock can absorb C14 or convert its N into C14 in any quantity while protected by the atmosphere. In space, it's normal and inevitable, and will reach a saturated level quite quickly.

Part of this perception issue has you objecting to a C14 dating website because you can't understand how it can be used to date meteorites. Do you think this is because the site is a crackpot site, or because you are having trouble understanding this concept? To answer your specific question above, random objects in space do usually have some quantity of most elements, e.g. nitrogen, oxygen, carbon, hydrogen and so on. They don't have to absorb anything and they don't usually do so.

http://www.austlii.edu.au/au/cases/sa/SAIRC/1997/50.html