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Dear Readers,

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Write to us in the enclosed envelope, or e-mail us at CRSEF@WORLDBYDESIGN.ORG if you want to continue receiving your free issues to WORLD BY DESIGN!

CRSEF would like to thank many of our readers who have made financial contributions to the carbon-14 dating lab which has now become an important part of our ministry. We have reported previously that we have made great strides in getting it up and running. And now, Lord willing, we are in the position of conducting scientific research which will further us in our goal: To make known the invisible things of God from the creation of the world by the things that are made (Romans 1:20).

One side benefit to CRSEF's lab (which we are calling C.R.A.L. for Columbus Radio Assay Laboratory) has turned out to be a ministry in its own right. With our laboratory equipment and expert supervision, we have trained some aspiring young creation scientists in chemistry and proper laboratory procedure. Young scientists learn that those who honor God have the advantage because they start with the right assumptions.

Below is a research report written about five months ago by Joshua Smithers as part of his assignment in a home schooling project. After orientation to the laboratory and by the recommendation of his mentor Mr. Garbe, Josh started the tree ring project, totaling over 100 hours in the lab. Josh is 13 years old and excels in the

sciences.

Laboratory Director, Robert Garbe comments, "Mr. Smithers has demonstrated skill and perseverance in his assigned project. Mr. Smithers eagerly engages challenges with innovation and intelligence. His attention to detail and precision in procedures is commendable. Josh had no hesitation in applying his skills in the laboratory and a public speaking report. These attributes combined with his perseverance will guarantee Josh's value as a partner in any project he accepts.

TREE RING DATING AND VALIDATION OF C. R. A. L. PROCEDURES

by Joshua Smithers

PROBLEM: Are the Columbus Radio Assay Laboratory procedures legitimate? My project was to determine if the procedures used to find carbon 14 levels are accurate.

A cross section of a tree stump approximately 30" in diameter, which spanned 72 years (1926-1998), was obtained. Drillings from every three to five years were brought to the lab. The procedures to be tested were:

- Removal of contaminants from the sample.
- Reducing sample to carbon.
- Determine ash percent.
- Oxidizing the sample.

Information: Since the dates of the tree

rings are known, the carbon 14 levels in each sample should correlate closely with the well-known and established C-14 percentage scale. It is expected that there will be moderate amounts of Carbon 14 in the near years, higher amounts in the 1960's (due to nuclear testing) then greatly smaller and declining amounts in the years earlier than the 1960's. By carbon dating the tree ring samples dating from 1929 – 1996 I could prove whether the tested procedures used were valid.

Procedure A – Removal of Contaminants.

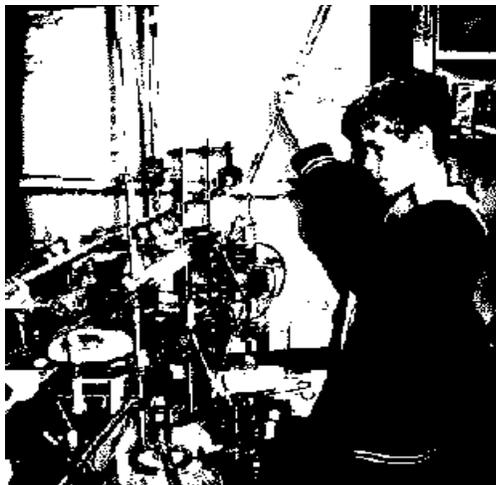
This involved soaking the sample in 1 normal HCL acid for 24 hrs. The object of this was to remove carbonates. The sample was then filtered via Buchner filter and air suction until the pH was around 5. The next step was to soak the sample in 0.1 normal NaOH for 24 hours. The sample was then filtered again until the sample was no longer alkaline. Finally the sample was soaked in 1 normal HCL

acid again to neutralize the NaOH and react with any carbonates brought in with the NaOH.

Procedure B – Reducing Sample to Carbon.

This required burning the wood sample without oxygen using a covered crucible. All materials

except for carbon were burned off. The carbon itself was not burned because there was no oxygen available to oxidize with.



Procedure C – Determine Ash percent.
 This procedure involved a partial amount of the sample, now carbon, to be burnt –if there is any ash (minerals that would not burn) then it is weighed to find the percent of the sample that is not carbon.

Procedure D – Oxidizing the Sample.
 This is the final step in preparing the sample to be analyzed. This step determined the amount of carbon 14 in the sample. The sample was put in a Vycor glass tube and burned with pure oxygen.



The by-product, carbon dioxide, was absorbed in a vial of 10ml of carbosorb. Lastly 10 ml of Permaflour was added to the carbosorb and the contents were then analyzed in the Liquid Scintillation Analyzer.

Data: Collect this from Mr. Garbe in its entirety.

Conclusion: With proper technique and precision the procedures in the C.R.A.L. Laboratory can be dependable.

Discussion: I found difficulty in obtaining the pH parameters of 5.5 – 7 during the first step of procedure A. The probable cause could be that there were humic acids in the sample. Testing tea which contains humic acids would be a start at solving this dilemma.

I am indebted to Mr. Garbe for his time and effort he has invested in me; his patience is admirable. Mr. Garbe's mission has ignited my curiosities in the sciences. Working beside Mr. Robert Garbe and Mr. Hugh Miller in the C.R.A.L.

Laboratory has been a privilege.

STEM CELL WARS

By Frank Vosler

Will the 21st Century be the Biotech Century? It would seem so with the human genome mapped and cloning and stem cell research going on furiously in a thousand labs around the world.

With stem cell therapy, biologists hope to make tissues and organs of good quality that can replenish or replace failing organs. Stem cell technology promises cures for Parkinson's, Alzheimer's, juvenile diabetes and other diseases. For example, cloned insulin-producing tissue might be added to a non-functioning pancreas, thus curing diabetes. In a similar manner cloned skin tissue might replace the skin on burn patients.

Today a furor is going on as Right-to-Lifers, lined up against most of the world, claim that harvesting stem cells from embryos is "killing babies", and that the same therapeutic goals can be accomplished through the use of adult stem cells which does not require creating and dismembering embryos. Several bills now before Congress would forbid government funds for any research that involves the killing of an embryo (extracting stem cells from a blastocyst).

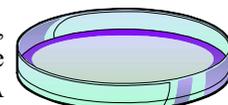
What, exactly, happens in the laboratory and clinic? In the current practice, the patient with a failing organ awaits a transplant, which he probably won't get in time because of the great shortage of available organs. If he does receive a donated organ, his body may reject the transplant because of DNA incompatibility. The body's immune system identifies the new organ as a foreign invader and tries to destroy it. What is needed, then, are fast-growing and versatile stem cells which contain the patient's own DNA.



DNA is the giant molecule in the cell nucleus that contains all the recipes called genes for all the body parts and over 200 different tissues. But any one cell needs only those genes required for its particular duties. The rest of the genes are turned off. A stem cell still has many of these optional genes turned on and so is capable of becoming any of many different tissues. The stem cells in the blastocyst have all genes "on" and can become literally any kind of tissue anywhere in the body.

For research purposes the DNA need not match the patient. So stem cells from umbilical cords and placentas, which are in plentiful supply from maternity wards, may be used and do not involve dismembering blastocysts.

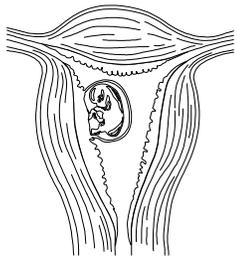
But for therapy, (i.e., replanting in the patient) the DNA must match. The best stem cells are those found in less than two-week-old blastocysts created for this purpose by inserting the patient's DNA into an egg whose DNA has been removed. These "cloned" eggs are grown in a lab petri dish to the blastocyst stage at which time its stem cells, seen as a "central mass" of cells in a sack, are extracted for implanting in the sick organ.



The Ethics of Embryo Harvesting

The harvesting of stem cells consists of collecting the central mass of cells and discarding the blastocyst sack, which renders the blastocyst incapable of implanting in a uterus and becoming a whole human being. This is called by some "killing a baby" and, hence, the furor in Congress over stem cell research.

The blastocyst is, no doubt, living and human, though only the size of a dot and almost certainly incapable of pain or self-consciousness. Does the blastocyst then have personhood? Louis M. Guenin, who teaches ethics at Harvard Medical School, has pointed out that, since a blastocyst can become a twin, it cannot yet be an individual identity.



Christians ask where to draw the line with little creatures destined for the image of God. At what time does God assign an embryo or fetus to be the temporal abode of a waiting human spirit?

The Bible is not definitive here. Psalm 139:16; Jer. 1:4,5; Luke 1:44 and other passages suggest that, in at least some cases, personal identification of the fetus is made by God before birth, but at exactly what stage of gestation is not stated. John the Baptist was a six-month-old fetus in Luke 1:44 when he was filled with the Holy Spirit, and Jacob and Esau were late-term preborns when God chose one for a historical destiny, Gen. 25:22-23. On the other hand, Exodus 21:22 suggests that a wrongfully caused miscarriage is a less serious crime than the murder of a born baby or older person.

The clinician who harvests the stem cells summarily ends the possibility of that blastocyst becoming a whole person and limits its stem cells to becoming body parts only. Does this mean that we are morally obligated to put all the unused embryos in the fertility clinics into available uteri to avoid their otherwise inevitable death? Are fertility clinics themselves inherently unethical for making excess embryos that cannot be kept alive? Right-to-Life forces have taken their stand at the definable point of conception for both abortion and blastocyst-harvested stem cells.

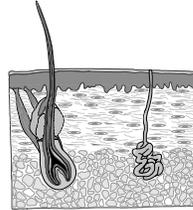
Adult Stem Cells

There is a way around this moral dilemma. Many (perhaps all) organs of the body contain "adult" stem cells. These need only be stimulated to rapid growth and reseeded in the organs from which they were taken. They need not be put through the questionable moral cloud of the cloning-blastocyst-harvesting process.

Gathering stem cells from some organs such as brain or spinal cord is difficult or risky and so it would be nice to use stem cells from the skin to make new brain

cells. To do this, the stem cells would have to have all their genes turned back on.

There have been a few successes in this direction. Bone marrow stem cells were recently transformed into nerve cells; a mouse nerve stem cell was changed to blood cells; and a cow's skin cell was coaxed to grow into a heart cell. This shows that stem cells for therapeutic use need not be taken from the diseased organ of the patient but can be taken from some more easily accessed tissue such as skin.



DNA ages with the organism, but stem cells are rich in telomerase which restores the frayed ends of the "old" genes so that tissues that are grown from stem cells are "young" again and will hopefully add longevity to the organs being repaired. Researchers speak excitedly of people living well past 100, but God, who made us mortal, may have something to say about that.

At our present stage of technology, the embryo route is the more successful. But Dr. David Prentice, adjunct professor of medical and molecular genetics at the Indiana University School of Medicine, is very optimistic about the ultimate superiority of the adult stem cell approach. He complains that "...the number of researchers in this area is still small, as is the amount of grant dollars needed to fund the research." When adult stem cell technology is successful enough, embryo harvesting may be a thing of the past.

In summary, it appears that the correct Christian position is to approve the use of cord and placenta blood as the source of stem cells for research, and to step up adult stem cell research for future therapy.

MAN AND POTTERY: The Creation, the Fall, and the Restoration by Eric J. Norman, Ph.D.

What does man have in common with a vase? The Bible teaches "the Lord God

formed man from the dust of the ground" (Gen. 2:7) and "Woe to him who strives with his Maker, an earthen vessel with the potter" (Is 45:9). However, "If any one purifies himself from what is ignoble, then he will be a vessel for noble use, consecrated and useful to the Master of the house, ready for any good work" (2 Tim 2:21).

Recently, in preparing my parent's house to sell, I decided to search the Internet to determine the value of a vase, a jardiniere, and a ten tile panoramic fireplace created by Frederick Rhead in 1911. Subsequent contact with art dealers and museums resulted in the sale of the jardiniere at an auction. The vase and fireplace will be sold/donated to the St. Louis Art Museum to establish a permanent exhibit with a plaque in memory of my parents. Surprisingly, the three items were appraised at approximately \$200,000, nearly twice the value of my parents house.

The vase could be compared to man. It was designed and created by an artist during a specific time. Similarly, as a Christian, I believe God created Man, and



as a biochemist I know evolution is contrary to the second law of thermodynamics, the laws of probability and information theory. Recently, an art appraiser commented that the vase was the most beautiful work of American ceramics that he had ever seen. However, some time in the past the vase fell and suffered a fine crack inside and, although not visible from the outside, its value was reduced by 50%. But by a surprised turn of events, the vase is perfect for a museum display.

God created man for his glory (Is 43:7) and for fellowship (1 Jn 1:3). Man was to exercise his free will to honor and give thanks to God (Romans 1:21) as he served and obeyed God (Gen. 2:15-17). The Bible indicates analogously that Satan was also created during the creation week. "You were in Eden, the garden of God...On the day that you were created they were prepared" (Ezek. 28:13). This

RETURN SERVICE REQUESTED

passage is in harmony with Mk. 10:6, Gen. 1:31, as well as Ex. 20:11 (“For in six days, the Lord made heaven and earth”) and would discredit the gap theory, progressive creation, theistic evolution, or other old Earth suppositions. Satan rebelled against God and then tempted Adam and Eve to disobey God resulting in the Fall.

The cracked vase remained on the mantle over the fireplace for years until my mother’s death in 1993. My brother then wrapped it in a blanket and placed it in a box and it was stored in a closet until 2001. Serendipitously, the vase was restored to undreamed prominence. Similarly, when we sincerely repent of our sins and give our life to the Lord Jesus Christ we are redeemed and become a “new creation” (2 Cor 4:17) and can follow Christ in the plan God has for our individual lives. “For we are his workmanship, created in Christ Jesus for good works, which God prepared before hand that we should walk in them.” (Eph. 2:10).

BIRD TAILS

Wind tunnel tests of frozen starlings, with and without their tails, reveals that we don’t understand bird tails like we thought we did.



Most avian tails are triangular in

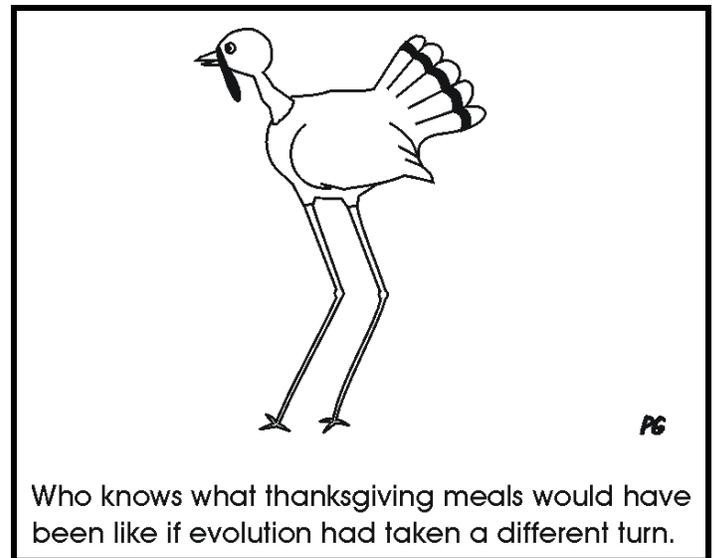
shape like the supersonic Concorde. Biologists have assumed that much of the shape of a bird’s tail comes from the aerodynamic need to provide lift. The other factor that comes into play - at least for the male in some species - comes from a need to show off to females. The peacock’s tail is a prime example of this function.

Previous wind tunnel tests showed that a bird tail by itself does indeed provide lift. And aerodynamic theory predicted that as a bird’s tail spreads, lift increases.

However, the additional wind tunnel tests revealed that there was more to the picture. The researchers found what they call “a hitherto unsuspected role” for a bird’s tail. The frozen starlings showed that at typical flight speeds, a folded tail reduces the bird’s drag by one-quarter to one-half, as compared to those without tails.

Matthew Evans of the University of Stirling in Scotland points out that the idea sounds sensible, citing the structures that act as drag reducers on both cars and airplanes. He suggests that bird tails may offer trade-offs among different flight

PALEOZOO



styles. Tail streamers help martins bank and improve their maneuverability, but cut their performance on straight line flight. Evans says, “You would think we would understand how birds fly, but we don’t.” (*Science News*, 7/14/01, p. 23)

Red-faced and downhearted, paleontologists are growing convinced that they have been snookered by a bit of fossil fakery from China. The “feathered dinosaur” specimen that they recently unveiled to much fanfare apparently combines the tail of a dinosaur with the body of a bird, they say.”

Monastersky, R., “All mixed up over birds and dinosaurs”, *Science News*, 1/15/00, p.102

WHAT TO BELIEVE

Today and in the past there were and are believers in God and His creation , but at the same time there were and are believers in evolution (or chance ?) Do you think the Bible has any thoughts about this? Cut out the pieces and fit together to find the answer.



In the New Testament, the Bible says :