A COMPARISON OF ANIMISTIC BELIEFS BETWEEN PAROCHIAL AND PUBLIC SCHOOL STUDENTS

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Abstract

A comparison is made between the willingness of parochial and public school students to accept animistic explanations for phenomena. The animistic views of 424 parochial high school seniors (class of 1994) were compared and contrasted with the animistic views of 1954, 1989 and 1992 introductory college biology classes. The distinctive difference between the public and parochial students was the public school students were taught evolution as a fact while the parochial school students were taught Biblical, young Earth creation as a fact. The parochial student groups showed similar animistic tendencies as the 1954 biology class. For the 1989 and 1992 public school group of students the animistic responses were double and even triple the responses given by the parochial and 1954 public school students. A statistically significant relation exists between the percent of students with a public school background at a parochial school and the willingness of the students at that parochial school to accept animistic explanations for phenomena. Taken as a whole, the data presented here seem to indicate that the teaching of evolution will result in students being more willing to accept animistic explanations for phenomena.

Introduction

Animism (from the Latin *anima*, "breath" or "soul") is the age old belief that an immaterial force (the *anima mundi* or "soul of the world") penetrates all matter giving to matter its form and movement ("Animism," 1994). As a philosophical theory, this immaterial force endows to all objects an inner or psychological being. Sociologists (Robertson, 1977, p. 368) classify animism as one of the four main religions (animism, supernaturalism, theism and abstract ideas).

> [Animism is a] kind of religion [that] recognizes active, animate spirits operating in the world. These spirits may be found both in people and in otherwise inanimate natural phenomena such as rivers, winds, mountains and the weather. These spirits are personified: they are assumed, like human beings, to have motives, will and emotions (Robertson, 1977, p. 368).

Primitive peoples pictured these spirits as phantoms, resembling vapors or shadows, which would transmigrate from person to person, from the dead to the living, and from and into plants, animals and lifeless objects. This ancient animistic philosophy was developed in ancient cultures, some believe, in an attempt to explain the causes of sleep, dreams, trances and even death. Ancients viewed these spirits not as gods to be worshipped but entities whose activities needed at least to be taken into account. These spirits may or may not respond to humans. The animistic spirits may be benevolent or evil or completely indifferent to humans (Robertson, 1977, p. 368).

Religious devotion to animistic theology appears throughout the cultures of ancient peoples as various forms of nature worship ("Nature Worship," 1994). The worship of fire is a common finding among primitive peoples with the most noteworthy being the ancient Parsis sect of Persia. The worship of celestial bodies is also a common occurrence. The Khoikhoi of South Africa worshipped the moon whereas the Iroquois, the Plains people, the Tsimshian people of North America along with the Native Americans of Mexico and Peru all worshipped the sun. The sun was a Hindu deity, the ancient Babylonians worshipped the sun and the ancient Egyptians worshipped the sun god, Ra. Other ancient Egyptian deities included the moon, the star Sirius, the circumpolar stars and various constellations.

Plants and trees have often been worshipped either as totems or as deity possessed objects (Saliba, 1994). As totems, the plants and trees took on a special significance between individuals or a social group who believed themselves to be linked with the totem in some way. Totems were common among the various Native North American tribes with the word "totem" derived from the language of the Ojibwa North American tribe. Totems also appeared in the cultures of ancient Peru, India and even primitive tribes and peasants of Europe. Even today traces of totemism may still be found in parts of Europe where field crops are often viewed as harboring spirits of fertility.

The devotion to natural objects to which supernatural attributes have been imputed is another common finding in ancient pagan cultures ("Fetishism," 1994). These objects, known as fetishes, are often figures modeled from clay, stone, wood, glass or other material usually in imitation of some deified animal or object. The fetish may be a tooth, a bone, a piece of hair or fur or sometimes the mummified animal itself. The fetish may be molded into the form of a tree, rock, river or some place which has particular spiritual significance. The fetish form of animism is particularly common among the peoples of West Africa.

Quite innocently, young children today will often hold animistic ideas. For them, this means that everything in the world is alive. Young children are often heard describing

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nighttime as the time when the sun goes to bed and morning the time when the sun wakes up. Children will say that Jack Frost paints the windows with frost and sends snow so they can play outside and build snowmen (Berger, 1988). Children's television shows regularly portray singing cows, sleepy flowers, talking trees, a laughing sun and dancing silverware. All this may be quite innocent with young children but it does become a problem when these idea are subtly carried into adulthood.

Previous Studies

In the Summer 1992 (Stewart, 1992) and Summer 1993 (Mickle, 1993) issues of *Creation/Evolution* two surveys were published on animistic beliefs among the introductory biology classes at Michigan State University and North Carolina State University. These two surveys presented some startling results. Professor Stewart from Michigan State University reported that from 1954 to 1989 "the animistic responses doubled and tripled, not decreasing in any instance" (Stewart, 1992, p. 18). Professor Mickle from the University of North Carolina wrote "the results I obtained were remarkably similar to the 1989 results of Stewart" (Mickle, 1993, p. 42). Mickle went on to report "many, in some cases [the] majority of students surveyed showed a general tendency to accept animistic explanations for phenomena" (Mickle, 1993, p. 43). The results obtained by Mickle and Stewart are discouraging but they are not surprising.

Why the Change? A Possible Explanation

Any student studying the biological science today will quickly recognize that evolution is a unifying principle of the biological sciences. However, this was not always the case. Bentley Glass wrote in 1949:

> When all is said, evolution remains the great unifying principle of modern biology. Nevertheless, it has not been too fashionable in the past three decades [1920s-1940s] to make it the central theme in elementary college courses in that subject, at least in the United States (Glass, 1949).

Evolution was widely accepted by the scientific establishment as a unifying biological principle during the decades of the 1920s through 1940s yet it was apparently not taught as such to biology students. During the first few years of the 1950s biology textbooks did not cover the biological sciences as being tightly woven with the theme of evolution. Glass writes that "teachers of biology should therefore welcome such a textbook" (Glass, 1949).

Wolfgang Pauli wrote in the introduction to his 1949 biology textbook:

> Biologists unanimously agree that the one unifying principle which underlies the whole field is that of evolution. It appeared to me some years ago that the logical way to teach the course in general biology would be to use this principle as a guiding theme. Surprisingly enough, however, there were, and are, no modern textbooks written primarily from this point of view (Pauli, 1949, vi).

In accordance with this, the average biology student in 1950 was not taught biology under the unifying theme of evolution. Evolution was certainly taught to students at that time, but its presentation as the grand unifying principle of biology is a phenomena only of the last four decades.

Evolution has at its heart the idea that everything in the universe came into being by some natural process - no outside agency was active or for that matter even necessary. At some point in time during the development of the universe inanimate matter gave rise to animate matter. In other words, nonlife gave rise to life. Evolution requires that at some distant point in the past nonliving matter gave rise to living matter.

A question arises as to whether this increased emphasis on evolutionary teachings resulted in the doubling and tripling of animistic responses among public school students. The purpose of this paper is to the explore the possibility that students who are taught evolution will have an increased tendency to hold animistic beliefs compared to students who are taught creation. The survey distributed by Professors Mickle and Stewart to their public school biology students was also distributed by this author to parochial high school students who were specifically taught Biblical Creation (six literal 24 hour days of creation, a universe < 10,000 years old, etc.). The parochial school results obtained are compared to the public school results of Mickle and Stewart.

Data Accumulation

The Wisconsin Evangelical Lutheran Synod (WELS) was founded in 1850 by congregations in and around Milwaukee, Wisconsin. The Synod's 400,000 baptized members are found in congregations throughout the United States and Canada with a very high percentage of its churches concentrated in Wisconsin, Minnesota and Michigan. The WELS is conservative in its doctrine confessing the Bible to be the verbally inspired word of God. The WELS confesses a young Earth creation doctrine and rejects "the theories of evolution as an explanation of the origin of the universe and man, and all attempts to interpret the Scriptural account of Creation so as to harmonize it with such theories" ("This we believe, A statement of belief of the Wisconsin Evangelical Lutheran Synod." 1967). The WELS places a large emphasis on education with a Seminary, two colleges, two high school preparatory schools, 21 area Lutheran high schools and 361 Lutheran elementary schools.

Eleven WELS high schools participated in this study. The schools that participated were Michigan Lutheran Seminary in Saginaw, Michigan, Arizona Lutheran Academy in Phoenix, Arizona, Martin Luther Preparatory School in Prairie du Chien, Wisconsin, Huron Valley Lutheran High School in Westland, Michigan, Winnebago Lutheran Academy in Fond du Lac, Wisconsin, West Lutheran High School in Hopkins, Minnesota, Saint Croix Lutheran High School in St. Paul, Minnesota, Northland Lutheran High School in Wausau, Wisconsin, Fox Valley Lutheran High School in Appleton, Wisconsin, Evergreen Lutheran High School in Kent, Washington, and Wisconsin Lutheran High School in Milwaukee, Wisconsin.

The questionnaire which was used by Mickle and Stewart and distributed to the 11 WELS high schools is reproduced in Figure I. The teachers to whom this questionnaire was sent were instructed to distribute these questions to the entire senior class. The teachers were instructed not to inform the students that this was a quiz on animism. The teachers were asked to give the questions to the students without any preface other than to ask them to answer the questions with what they honestly thought to be the best answer. The teachers were free to tell the students that they were taking part in a study and that they would be informed of the results.

The teachers were also asked to provide information on the amount of science training the students had received prior to the time of taking this quiz including their exposure to evolutionary theories. They were also asked to provide information on whether animism was discussed in any class prior to the students answering these questions, and if so, in what context where the students exposed to animistic ideas. The teachers were also asked to provide an estimate of the percentage of students taking the test which came from a public school background (high school and/or elementary school).

Results and Discussion

The results obtained from this survey are given in Table I. The results for each question are given as the percentage of students answering each question. The correct, or non-animistic, answer to each question is E. In Table I, the column labeled T is the total results for all 11 WELS high school senior student groups. The columns labeled 54, 89 and 92 are the data collected by Mickle and Stewart. The 54 and 89 data were collected from students that had just completed an introductory biology course at Michigan State University. The 92 data was the result of a survey of students in a general biology class for non majors at North Carolina State University. The majority of students in the 92 data majored in humanities, social sciences and business with a few majoring in engineering and the life sciences.

The results of each student group from Table I were quantified by determining an animistic score for each school. The results of this calculation are given in Table 11. The animistic score for each school was calculated by assuming the answers for each question from A to E were in order of decreasing animistic bias. It is uncertain if the circumstances behind the original quiz allow such an arrangement but it does appear reasonable that they are arranged in such an order. The score for each school for a particular question was determined by multiplying the percent responses for A by 0, the percent responses for B by 1, the percent responses for C by 2, the percent responses for D by 3 and the percent responses for E by 4. These numbers were then summed with the total divided by 100. Scores for the individual questions ranged from 0.0 to 4.0. The higher the tendency a group showed towards animism the lower their score. If a student group answered all E for a particular question then their score for that question would be 4.0, The average score for each question for each school was calculated in this manner. The total score and the standard deviation for each school was calculated by averaging the scores for the five questions. The combined score for each question for all 11 WELS student groups along with a total score for the WELS students were also determined. These are given as column T in Table II.

From Table II, the average score for the WELS student data set was 3.4±0.2. The low score for a group of parochial school students was 3.0 with three schools having the high score of 3.7. The public school scores were 3.6±0.2 and 2.8±0.3 for the 1954 and 1989 biology classes at Michigan State and 3.1±0.2 for the 1992 biology class at North Carolina State. A one-way analysis of variance was conducted to determine if there was a statistically significant difference between these three groups. The results of this are given in Table III.

There was no statistically significant difference (at the 95% confidence interval) between the WELS group of students and the 1954 biology class at Michigan State University. The WELS students had an average score of 3.4 with the Michigan State students an average score of 3.6. There was a statistically significant difference (at the 95% confidence level) between the WELS group of students and the 1989 biology class at Michigan State (average score of 2.8) and the 1992 biology class at North Carolina State (average score of 3.1).

These results are interesting. The WELS student groups showed similar animistic tendencies as the 1954 biology class at Michigan State. For the 1989 and 1992 public school group of students the animistic responses were double and even triple the responses given by the WELS and the 1954 public school students. In some cases (particularly questions 3, 4 and 5), the majority of the 1989 and 1992 public school students surveyed showed a general tendency to accept animistic explanations for observed phenomena (Table I). There were no regional differences as the student bodies came from Michigan, North Carolina, Minnesota,

Table I. Animism survey results. Results given as a percentage of students answering each question. The last row of the table is the number of students at each school that responded. Key to table is given at the end of the table.

Q#	MS	AR	MP	HV	WL	WS	SC	NL	FV	EL	WH	T	54	89	92
1a	4	0	2	0	0	0	3	0	2	0	2	2	0	16	10
b	8	0	2	7	7	0	3	0	2	7	12	7	0	5	8
c	4	5	5	26	3	0	17	7	4	0	6	6	13	17	14
d	0	0	8	0	0	0	0	0	0	0	0	1	0	0	1
e	84	95	83	67	90	100	77	93	92	93	80	84	88	62	67
2a	10	0	5	7	3	0	0	0	4	0	4	4	0	6	7
b	2	0	2	7	3	0	0	7	0	7	3	2	8	8	3
c	2	5	5	13	4	0	3	7	0	0	5	4	3	12	10
d	0	0	5	0	0	0	8	0	0	0	2	2	0	1	3
e	86	95	83	73	90	100	89	86	96	93	86	88	90	73	77
3a	8	0	7	13	10	0	17	0	4	0	16	10	3	14	7
b	0	0	5	0	7	0	11	7	2	13	4	4	3	8	7
c	4	5	5	7	0	0	3	0	0	0	2	3	8	11	11
d	16	43	7	27	7	25	19	14	9	20	17	16	30	41	25
e	72	52	76	53	76	75	50	79	85	67	61	67	57	24	50
4a	0	5	2	13	3	0	0	0	0	0	1	1	0	3	1
b	21	5	22	33	10	17	17	0	8	7	16	16	0	23	19
c	11	23	5	0	18	8	14	14	9	7	12	11	11	17	15
d	12	19	0	14	3	8	8	14	0	26	7	8	15	26	26
e	56	48	71	40	66	67	61	72	83	60	64	64	75	30	39
5a	5	0	10	7	3	0	8	0	0	0	7	5	0	6	4
b	4	0	0	13	7	0	11	0	4	7	5	5	0	6	6
c	12	10	2	13	4	8	4	0	2	0	9	7	5	14	13
d	7	19	12	7	0	17	8	29	7	13	8	9	45	37	21
e	72	71	76	60	86	75	69	71	87	80	71	74	50	35	56
size	57	21	42	15	29	12	36	14	46	15	137	424	NA	100	220

MS: Michigan Lutheran Seminary
AR: Arizona Lutheran Academy
MP: Martin Luther Preparatory School
HV: Huron Valley Lutheran High School
WL: Winnebago Lutheran Academy
WS: West Lutheran High School
SC: Saint Croix Lutheran High School
NL: Northland Lutheran High School
FV: Fox Valley Lutheran High School
EL: Evergreen Lutheran High School
WH: Wisconsin Lutheran High School
T: Total WELS Schools surveyed
54: 1954 biology class at Michigan State University
89: 1989 biology class at Michigan State University
92: 1992 biology class at North Carolina State

Table II. Animism survey results. See Table I for school abbreviations. The score for each question was calculated as follows: [(Ql*0)+(Q2*1)+(Q3*2)+(Q4*3)+(Q5*4)]/100. The average (avg.) is the average score for that school and the standard deviation (std.) is 1 standard deviation.

Q#	MS	AR	MP	HV	WL	WS	SC	NL	FV	EL	WH	T	54	89	92
1	3.5	3.9	3.7	3.3	3.7	4.0	3.5	3.9	3.8	3.8	3.4	3.6	3.8	2.9	3.1
2	3.5	3.9	3.6	3.3	3.7	4.0	3.9	3.7	3.8	3.8	3.6	3.7	3.7	3.3	3.4
3	3.4	3.5	3.4	3.1	3.3	3.8	2.7	3.7	3.7	3.4	3.0	3.3	3.4	2.5	3.0
4	3.0	3.0	3.2	2.4	3.2	3.3	3.1	3.6	3.6	3.4	3.2	3.2	3.7	2.6	2.8
5	3.4	3.6	3.4	3.0	3.6	3.7	3.2	3.7	3.8	3.7	3.3	3.4	3.5	2.9	3.2
avg.	3.4	3.6	3.5	3.0	3.5	3.7	3.3	3.7	3.7	3.6	3.3	3.4	3.6	2.8	3.1
std.	0.2	0.4	0.2	0.4	0.2	0.3	0.4	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2

Table III. One way analysis of variance. Variance is 1/Nth the sum of the squares minus the square of the mean. Sum of the squares is the sum between groups (between) and the sum within each group (within). F is the model mean square (mean square between groups) divided by the error mean square (mean square within group). P is the probability of obtaining (by chance alone) an F value greater than the one calculated if there is no difference between the group means. A P value <0.05 (95% confidence interval) is generally considered evidence of a significant difference. F critical is the critical value of F for P = 0.05 at F(l,8).

Groups	Mean	Variance	Sum of squares	Mean Square	F	P	F critical
T	3.42	0.04	between = 0.08	between = 0.08	2.0	0.19	5.3
54	3.60	0.03	within = 0.31	within = 0.04			
T	3.42	0.04	between = 0.95	between = 0.95	13	0.01	5.3
89	2.81	0.10	within = 0.56	within = 0.07			
T	3.42	0.04	between = 0.25	between = 0.25	5.8	0.04	5.3
92	3.11	0.04	within = 0.35	within = 0.04			

Table IV. Relation between the percentage of students at a school (see Table I for school abbreviations-only these 8 schools provided this information) with a public school background and that school's average score for each of the five questions and their total average score. The rows at the end of the table labeled CorrCoeff give the linear correlation coefficient between the % students with a public school background and the average score for each question. CorrCoeff (all) is for all 8 schools, CorrCoeff (≥ 3%) is for the 7 schools with at least 3% of the students with a public school background, etc.

% students with public school background	Question 1 avg. score	Question 2 avg. score	Question 3 avg. score	Question 4 avg. score	Question 5 avg. score	All Questions avg. score
0% (WL)	3.7	3.7	3.3	3.2	3.6	3.5
3% (WH)	3.4	3.6	3.0	3.2	3.3	3.3
8% (WS)	4.0	4.0	3.8	3.3	3.7	3.7
10% (HV)	3.3	3.3	3.1	2.4	3.0	3.0
12% (NL)	3.9	3.7	3.7	3.6	3.7	3.7
19% (AR)	3.9	3.9	3.5	3.0	3.6	3.6
19% (MP)	3.7	3.6	3.4	3.2	3.4	3.5
25% (MS)	3.5	3.5	3.4	3.0	3.4	3.4
CorrCoeff (all)	0.07	-0.11	0.28	-0.14	-0.03	0.10
CorrCoeff (≥ 3%)	0.11	-0.08	0.24	-0.09	0.12	0.17
CorrCoeff (≥ 8%)	-0.22	-0.19	-0.25	-0.03	-0.05	-0.01
CorrCoeff (≥ 10%)	0.10	0.26	0.15	0.15	0.26	0.29
CorrCoeff (≥ 12%)	-0.84	-0.45	-0.89	-0.89	-0.83	-0.95

Choose the best answer for each question.

1. Many ships are at the bottom of the sea. We cannot find them. Do you think the sea itself knows where they are?
   a) Yes, because the chemicals of the sea come into contact with them and know where they are.
   b) Yes, because the sea rubs over them and knows them to be there.
   c) Probably not because the sea has no nerves of its own.
   d) No, there are so many sunken ships, the sea could not keep track of them all.
   e) No, the sea is incapable of knowing anything.
2. When an automobile tire blows out, does the tire feel anything?
   a) Yes, the tire feels the great and sudden reduction of pressure.
   b) Yes, the rubber molecules are very active and feel the rending and tearing.
   c) Probably not, the rubber in the tire has been dead for a long time since it was part of a tree.
   d) No. Once a tire blows out it is too dead to feel.
   e) No, an automobile tire cannot feel anything.
3. When a plant is cut off, it wilts. Does the plant feel depressed when this happens to it?
   a) Yes, its gradual reduction of living forces makes the plant suffer.
   b) Yes. The cells shrink and become dry and cause a depressed feeling.
   c) Probably, but only in a very dim sort of way.
   d) Probably not, plants do not have consciousness, at least to this degree.
   e) No. Such feelings are not possible for plants.
4. Is the sun in any way living?
   a) Yes, because it gives off flames which indicate life.
   b) Yes, because it gives forth energy which makes life possible on earth.
   c) Yes, it is not breathing, but it is pulsating, ever-changing and therefore living.
   d) Probably not. It is doubtful that the sun shows any manifestations of life.
   e) No. It is not in any way alive.
5. The natural oyster pearl was once in a shell in the sea. When the water moved over it could the pearl feel the movement?
   a) Yes. It was a growing thing, much like a fetus in a mother's womb.
   b) Yes. The pearl was part of a living thing.
   c) Probably, but only indirectly through the senses of the oyster.
   d) Probably not. A pearl is just a kind of growth like a tumor.
   e) No. A pearl could never feel anything.

Figure 1: Animistic quiz distributed to all students (Stewart, 1992).

Wisconsin, Arizona and Washington so the indicated beliefs by the students are widespread.

The data in Table IV examines the relation between the percentage of students with a public school background (high school or elementary school) at a particular WELS school and that schools average score for each of the five questions and the school's total average score. A student had no public school background if their entire schooling was from a parochial school (in almost every case a WELS elementary school). A student was considered to have had a public school background if they had a minimum of one elementary or high school year spent in a public school. The first column in Table IV lists the percent of students with a public school background that participated in the quiz for each school. Unfortunately, not all of the WELS schools that participated in this study provided this information. At the bottom of Table IV is given the linear correlation coefficients between the percent students with a public school background and the average score for each question and the average score for each school for all five questions. The row labeled CorrCoeff (all) is the linear correlation coefficient using all eight schools in Table IV. The row labeled CorrCoeff ($\geq$ 3%) is the linear correlation coefficient for the seven schools with at least 3% of the students having a public school background.

From Table IV, there was a statistically significant relation between the percent of students with a public school background and a school's animistic score for those WELS schools where at least 12% of their student body had a public school background. The general relation which was observed was as the percent of student with a public school background increased, the school received a lower score. In other words, as the percent of public school students increased, the student body showered a greater tendency to accept animistic explanations for phenomena. This result is consistent with the data already presented showing public school students to have a higher tendency towards accepting animistic explanations for observed phenomena.

There are two main differences between the education received by the public school and WELS students in this study. First, the WELS students all had at least two years of general science courses and in these courses they are introduced to evolution as an incorrect view of the origin of life on earth. These students are all taught Biblical creation from the perspective that the universe and all life was created by God no more than 10,000 years ago in a series of created acts that took place over six literal 24 hour days. The WELS has remained unwavering in its stand and teaching of creation throughout its 150 year history. Second, the WELS students are introduced to pagan animistic religions in their study of world religions so may have had more exposure to animism than the public school students. Because of this latter fact, the data presented here may not be sufficient to quantify the effect that the teaching of evolution has had on a students' willingness to accept animistic explanations for phenomena.

The interesting comparison is between the WELS group of students and the 1954 public school biology class. There was no statistically significant difference between these two student groups in their acceptance of animistic explanations for phenomena. In 1954, the teaching of evolution as the grand unifying theory of biology was in its infancy (Pauli, 1949, vii). Evolution was taught in public schools in 1954 but the level of vigor with which it was taught is unmatched by the increased level of today. The concepts that a tire would have feelings or that sea was intelligent were odd concepts to both the public and parochial class of 1954. This does not seem to be the case today with the public school classes. Taken as a whole, the data presented here seem to indicate that the teaching of evolution will result in students being more willing to accept animistic explanations for phenomena.

Conclusions and Future Work

Heinz Pagels (late director of the Academy of Sciences) wrote that "70% of all U.S. college undergraduates believe in some kind of psychic or supernatural forces lying outside of natural science" (Pagels, as quoted in Stewart, 1992, p. 18). Pagels blamed this in part on the impaired scientific state of television, books and magazines. This may indeed be true. However, this study does indicate that there is a significant difference between the "supernatural forces" beliefs of public versus parochial school students and that this difference may be due to the teaching of evolution.

The results of this study were very interesting. In order to obtain a fuller understanding of the relation between the teaching of evolution and animistic ideas in students this study will need to be expanded. The author encourages all readers of this journal who are teachers to give this quiz to their students. It would be interesting to include with the five animistic questions an additional question inquiring of the student's view of origins. An example of a question that could be used is as follows:

6. What is your personal view of the origin of the earth and life on earth?

A. The earth and all life were created by God over six literal 24 hour days no more than 10,000 years ago.

B. The earth and all life were created by God over the course of millions of years.

C. The earth formed and all life appeared without the assistance of any God.

Comparing how a group of students answer the above question 6 with their animistic score for the entire quiz may provide more insight into the role evolution has played in shaping an individuals willingness to accept animistic explanations for phenomena.

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PHOTO ESSAYS

Large-Scale Cross-Bedded High-Energy Flood Deposits*

This photograph illustrates the large-scale high-angle cross-bedding of the Big Yellow Sandstone Member found within the Big Canoe Valley, Big Bend National Park, Texas. Based on this outcrop and a few others found nearby uniformitarians have recreated a river environment within this small area. This pseudo-environment exists only in the minds of the uniformitarian scientists in their version of Earth's distant past (more than 35 million years ago!) The global uniformitarian stratigraphic column is built on just this sort of extrapolation!

Due to the close proximity of volcanoes and their associated high-energy environment, it would not be unreasonable to interpret the sands and their cross-bedding as being derived from the former activity of the nearby volcanoes in combination with reworking from Floodwater. This creationist interpretation eliminates the need for vast amounts of time and any pseudo-environment involving theoretical rivers. The Flood Event Timeframe would have provided sufficient geologic energy to create and form these sandstone cross-beds in the manner that we observe them today.

Igneous Dikes at Three-Dike Hill*

Three-Dike Hill is a large mountain found along the Rio Grande River south of Redford, Texas. It is 3,430 feet high. It exhibits three dikes running vertically up the side of the hill shown in this photograph. Note that one is in the center of the hill and the other two are to the right side. A dike wall lies along the bottom of the hill (from left to right) and extends into the dike on the far right side of the hill.

Three-Dike Hill was originally identified in a report of the area documenting the United States and Mexico boundary in 1852. It has been studied by geologists and astronauts since this time.

Presently, Uniformitarians interpret this mountain block as being somewhat stable during the injection of the magma generated dikes. Following this event the surrounding area sank, thus exposing this outcrop. Uniformitarians acknowledge that much remains unexplained within their present theory.

Creationists might interpret this mountain as reflecting Flood deposited sediments which were later subjected to volcanic events (found throughout this area) resulting in uplift and erosion - all possibly still under the Floodwater. Tectonism coupled with receding Floodwaters created conditions of block rotation and erosion sufficient to result in the exposure of the Three-Dike Hill. This mountain may contain key information regarding the volcanic processes which occurred during the Flood within the Rio Grande River Valley. Further investigation is necessary to determine the significance of this mountain and its dikes within the biblical framework.

*Both of these photo essays are by Carl R. Froede, Jr, 2895 Emerson Lake Drive, Snellville, Georgia 30078-6644.