Commonwealth Honors Conference
Middlesex Community College April 2011
WINOGRADSKY COLUMNS ILLUMINATED:
THE EFFECT OF DIFFERENT LIGHT
ON BACTERIA

GOAL
To observe the effects of different light on self-
containing aerobic and anaerobic organisms.

HYPOTHESIS
Examine the effects of different light on the
organisms found in the Winogradsky Column.

THE WINOGRADSKY COLUMN
- Cyanobacteria
- Protists
- Green sulfur bacteria
- Purple non-sulfur bacteria

METHODS
1. Prepare Winogradsky Columns:
   - Add 100 mL of "aspirin" to each of 4 test tubes.
   - Add about 2g of Calcium Sulfate and Sodium
   Phosphate to each tube and stir.
   - Add about 1mL of "aspirin" water.
2. Expose to light sources: Natural light,
   Incandescent, Fluorescent, and Ultraviolet.
3. Observe changes in color and size of layers.
4. Observe content of columns under a microscope.

RESULTS
- Incandescent
  - Cyanobacteria and protists visible under the microscope in large
  colonies.
  - Colonies grew in number and size.
  - Colonies remained visible in colonies.
- Fluorescent
  - Cyanobacteria and protists visible under the microscope in large
  colonies.
  - Colonies remained visible in colonies.
  - Colonies grew in number and size.
- Ultraviolet
  - Cyanobacteria and protists visible under the microscope in small
  colonies.
  - Colonies remained visible in colonies.
  - Colonies did not grow in number and size.

CONCLUSIONS
The results support the hypothesis that incandescent light affects the
growth of the organisms, and that the colonies remain in U.V. light
without the same effect.

Possible factors affecting the results:
- Different in terms of exposure to light

REFERENCES
http://www.howto.com
http://www.howto.org
http://www.howto.net

Commonwealth Honors Program
Middlesex Community College
Poster Board Conference
TABLE # 35A
DISEASE THAT KILL EMPIRES
The Influence of Buddhism on Wang Wei’s Poetry and Art

Thesis

Wang Wei’s painting and poetry reflect his Chan Buddhist philosophies. The belief that words alone cannot adequately express the true state of enlightenment. The natural world is the only reality, a person should live a life without deliberate effort or purpose. The influence of Chan Buddhism is evident in Wang Wei’s sparseness of words and the minimalism of his paintings.

Deer Park

Hills empty, no one to be seen,
We hear only voices echoing back into the deep woods,
The sun as the moon shines again.
—translated by C. J. Anderson, 1927

Deer Fence

Empty hills, moon in sight,
Only the sound of someone talking.
She rises late into the deep woods, shining over the green once more.
—translated by Burton Watson, 1927

Character by Character translation

<table>
<thead>
<tr>
<th>Character</th>
<th>Chinese</th>
<th>Pinyin</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>鹿</td>
<td>飛</td>
<td>lí</td>
<td>deer</td>
</tr>
<tr>
<td>青</td>
<td>青</td>
<td>qīng</td>
<td>green</td>
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</tbody>
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The Form of the Deer

So leave the hills, there is no one in sight there.
But where is the echo of distant trees?
The days of the coming peace shining the East,
And in their reflection, green woman appears.
—translated by Kawei D. K. Wu, 1947
Psychology Behind Dr. Jekyll and Mr. Hyde

**Jekyll**
- Kind-hearted, hospitable, loyal, friendly, well-respected, intelligent
- Evil, grasping, looking for power, using, over-powering

**Mood**
- Superficial

**Mr. Hyde**
- The ego is based on the reality principle. It is a manipulation of the ID while also thinking that it dictates our belief of right or wrong.

**Jekyll's Conscience**
- ID is based on our pleasure principle. It does what it wants without considering for reality.
Development of Memory in Individuals with Down Syndrome
Francisca Palacios, Middlesex Community College

Introduction
How do we recall situations of our past? How can we grow and learn based on past experiences? How does this ability develop in people with Down syndrome? Memory is the ability to remember situations as well as the capacity of remembering. Down Syndrome is a genetic disorder that affects directly the part of the brain that is involved with memory. Studies have shown that there is a link between Down syndrome and Alzheimer’s disease, that is a type of dementia causing the degeneration of memory.

Statistics
- 2% of the world’s population has Down Syndrome
- 6% of the world’s population has Alzheimer’s

At the age of 65, 96% of the population of Down syndrome people develops Alzheimer’s diseases

Conclusion
Memory develops differently in down syndrome individuals because of the basic impairment in the phonological loop of the brain. The link between Alzheimer disease and Down Syndrome is that both individuals have shown a great amount of beta-amyloid plaquets in the brain which causes the degradation of memory.

- Visuo-partial
- Phonological loop
- Explicit (conscious attempt to recall a memory)
- Implicit (inconscious)

Direct problems with
- Extra copy on chromosome 21
- Affects directly working memory, resulting in delays on language and learning problems

Progressive degenerative brain disease, it affects memory lost and eventually dementia.
CHILDHOOD J.K. ROWLING

Losing a Mother
