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TWENTIETH CENTURY LYRICS. SCIENCE AND POETRY. LITERATURE CURRICULUM IV, STUDENT VERSION.

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THIS CURRICULUM GUIDE FOR 10TH-GRADE STUDENTS DEALT WITH (1) 20TH-CENTURY LYRIC POETRY AND (2) THE COMPARISON BETWEEN SCIENTIFIC AND POETIC WRITINGS. A HISTORICAL INTRODUCTION PRECEDED PRESENTATION OF THE MATERIAL IN BOTH SECTIONS. SUGGESTIONS, EXERCISES, AND COMPOSITION TOPICS WERE ALSO PRESENTED. THE TEACHER VERSION IS ED 010 820. RELATED REPORTS ARE ED 010 129 THROUGH ED 010 160 AND ED 010 803 THROUGH ED 010 832. (GD)

OREGON CURRICULUM STUDY CENTER

TWENTIETH CENTURY LYRICS, SCIENCE AND POETRY,

Literature Curriculum IV,
Student Version .

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TWENTIETH CENTURY LYRIC POEMS

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TWENTIETH CENTURY LYRIC POEMS

Consider a table. It stands on four legs. When you talk about the legs of a table you are using a metaphor, personifying that table. But the metaphor is dead; it has been used so long and so often that the figurative comparison between a human leg and the thing that keeps the top of a table off the ground is no longer noticed.

Roughly around the beginning of the Twentieth Century, poets began to feel that much the same process had been going on in the writing of poetry. They felt that much of the verse being written was neglecting some of the most important aspects of poetry. If poetry is to be taken seriously by the reader and mean something to him, they said, it must communicate directly, and must use fresh and vivid imagery. Words must be used accurately, and not just be put into a line to pad out the meter.

The sort of thing they objected to can be illustrated by a brief comparison. Here is one poet talking of birds in the woods:

> I heard a thousand blended notes,
> While in the grove I sate reclined,
> In that sweet mood when pleasant thoughts
> Bring sad thoughts to the mind.

And here is another:

> The thrush
> Through the echoing timber does so rinse and wring
> The ear, it strikes like lightnings to hear him sing.

The first is Wordsworth, the second is Hopkins; both of them are poets you have already encountered. We do not want to imply by this comparison that Wordsworth is a bad poet (although the poem from which this verse comes is not one of his best). We merely wish to point out that poets had been saying things like this ever since Wordsworth wrote these lines around 1800, and that by the Twentieth Century familiarity had finally dulled the reader's attention. The lines pass in front of our eyes, and we get a sort of idea of what he's talking about, but our attention is not caught, and the language has lost whatever vitality it may once have had. What accuracy is there, for instance, in the statement that "pleasant thoughts/ Bring sad thoughts to the mind"? Similarly, the phrase "I heard a thousand blended notes" is tired and does not attract attention; it is not vivid. Compare it with the lines by Hopkins from the standpoint of diction (word choice) and the difference becomes obvious. Table legs: tired diction, tired images.

At the same time that many poets were growing tired of the old ways of writing poetry, the world was changing more rapidly and more radically than ever before. The Industrial Revolution, the growth of cities, more rapid communications, the growth of science, all made man's environment something totally different from anything known before. And this rapid and radical change was continuing at an ever faster rate. A farmer living in 900 A. D. would not find things on the farm <u>too</u> much different if he were suddenly trans-

ported to 1900--a jump of one thousand years. But consider the farmer of 1900 moved up to 1960--less than one hundred years. Tractors, combines, milking machines, contour farming, chemical fertilizers, insecticides, air-conditioned hen-houses, refrigerator trucks to move the produce hundreds of miles overnight, TV sets in the farmhouse, crop dusting from airplanes,--all of them now common equipment, and all unthought of in 1900. That poor fellow would not even know how to begin to run a modern farm.

If poetry is concerned with the nature of man and his place in the world, then, argued these poets of the Twentieth Century, modern poetry must take account of man's changing world and his changing place in it. In a world that is becoming more and more a world of large cities, heavy industry, and machines, what is the relationship of man to nature? Of man to the city? Of man to his neighbor? Can you talk of "the gentle cow's sweet breath" to a man who never saw milk outside a bottle? Can you talk of "spring-fresh fields" to a man whose playground was a street corner? These poets felt that standard poetic forms, standard poetic language, and standard poetic subjects and attitudes were none of them adequate for the treatment of man in the Twentieth Century.

Again, let us illustrate by a comparison. Here is one poet talking about a city:

> Earth has not anything to show more fair:
> Dull would he be of soul who could pass by
> A sight so touching in its majesty:
> This City now doth, like a garment, wear
> The beauty of the morning; silent, bare,
> Ships, towers, domes, theatres, and temples lie
> Open unto the fields and to the sky;
> All bright and glittering in the smokeless air.
> Never did sun more beautifully steep
> In his first splendor, valley, rock, or hill;
> Ne'er saw I, never felt, a calm so deep!
> The river glideth at his own sweet will:
> Dear God! the very houses seem asleep;
> And all that mighty heart is lying still!

Again, this is by Wordsworth, and is considered by most critics one of his best poems. But excellent as the poem is, it does not express, either in diction or attitude, what many poets feel about Twentieth Century cities. Notice that Wordsworth is not in the city; he is standing at some distance away from it. And notice further that he regards the city only insofar as it can be compared to a rural scene. Now compare this poem with some modern poets' attitudes toward the city. Here is T. S. Eliot:

> A rat crept softly through the vegetation
> Dragging its slimy belly on the bank
> While I was fishing in the dull canal
> On a winter evening round behind the gashouse . . .
> (From "The Waste Land")

Or again:

> Let us go through certain half-deserted streets,
> The muttering retreats
> Of restless nights in one-night cheap hotels
> And sawdust restaurants with oyster shells . . .
> (From "The Love Song of J. Alfred Prufrock")

And here is John Gould Fletcher:

> Like a wet petal crumpled,
> Twilight fell soddenly on the weary city;
> The buses lurched and groaned,
> The shops put up their doors. . .
> (From "London Nightfall")

And here is Stephen Spender:

> . . . . . chimneys like black fingers
> Or figures frightening and mad and squat buildings
> With their strange air behind trees, like women's faces
> Shattered by grief. . .
> (From "Landscape Near an Aerodrome")

As you can see from these various sets of comparisons, poets were trying to make poetry vital again -- to bring it into some accurate and significant relationship with modern man in the modern world. They experimented with new uses of language, new verse forms, new images, new "non-poetic" subject matter. Much of the poetry thus produced was not very good; much of it was experimental, and like many experiments, didn't succeed. But much of it was very successful. It dealt in a fresh and vital way with unchanging human nature in a rapidly changing world.

In about 1915 a group of poets summed up the aims and methods of modern poetry in a brief series of statements:

To use the language of common speech, but to employ always the <u>exact</u> word, not merely the decorative word.
To create new rhythms, as the expression of new moods.
To allow absolute freedom in the choice of subject.
Poetry should render particulars exactly and not deal in vague generalities, however magnificent and sonorous.
To produce poetry that is hard and clear, never blurred or indefinite.
Concentration is the very essence of poetry.

Of course, not all modern poets have followed all these rules at all times, but the general trend of modern poetry has been pretty much guided by the implications of these statements.

One of the implications of these statements is that modern poets require a good deal of effort from the reader. In trying to make poetry "an extension of experience," modern poets refuse to let the reader sit at his ease while the words slide by in front of him. They demand, and reward, close and constant attention to what the poem is doing. The charge is frequently made that modern poetry is too difficult, that it is deliberately obscure, and that it pays no attention to earlier poetic techniques and subject matter. The accusation, at least in the case of the poets you will read in this unit, is unjust. The modern farm, with its tractors and air-conditioned henhouses, is more "difficult" to understand than a team of horses and nests in the hayloft. The milking machine is more "difficult" than a farmer's hand, but the engineer who designed the milking machine and the cream separator was not being deliberately obscure. He was seeking modern answers to modern problems; if the answers happened to be more complex, it was because modern life was more complex. To continue the analogy, the milking machine can be seen as a continuation of earlier techniques and subject matter: one is still, after all, getting milk from a cow. Similarly, the modern poets in the examples cited here are still using metaphor and simile, and their subject matter is still man's relation to the city.

"Red Wheelbarrow"

by William Carlos Williams*

(For text of poem, see The Collected Earlier Poems of William Carlos Williams; New Directions Book published by James Laughlin, New York, 1951; p. 277)

The work of Kenneth O. Hanson (who lives in Portland, Oregon) writing as Carlos Williams (1883-1963) was both a practicing [illegible] from the University of Pennsylvania, graduate work [illegible] and a professional poet. He explains the combination [illegible] Both often necessary to me. One [illegible] the ox among the neighbors, the other permits me to express what I've been turning over in my mind as I go along."

"Poem"

by Kenneth O. Hanson*

(For poem, see San Francisco Review, No. 2, 1959.)

(For poem, see San Francisco Review, No. 2, 1959.)

*The work of Kenneth O. Hanson (who lives in Portland, Oregon, and teaches at Reed College) has been published in such magazines as The New Yorker, The San Francisco Review, Sewanee Review, and Poetry Northwest. Eighteen of his most recent poems appear in Five Lyrics of the Pacific Northwest (U. of Wash. Press, 1964). "Poem" and "Motorcyclists" are of earlier date.

"Motorcyclists"

by Kenneth O. Hanson

(For poem, see San Francisco Review, No. 2, 1959.)

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CASEY AT THE BAT

"Traveling Through the Dark"

by William Stafford*

(For poem, see <u>Traveling Through the Dark</u>, Harper & Row, New York, 1962, p. 11.)

And now the leather-covered sphere came whirling through the air,

... the beating of the storm-waves on a stern and distant shore.
"Kill him! Kill the umpire!" shouted someone on the stand;
And it's likely they'd have killed him had not Casey raised a hand.

With a smile of Christian charity great Casey's visage shone;
He stilled the rising tumult; he bade the game go on;
He signaled to the pitcher, and once more the spheroid flew;
But Casey still ignored it, and the umpire said, "Strike two!"

***William Stafford, who lives in Lake Oswego, Oregon, and teaches at Lewis and Clark College, has published two volumes of verse, <u>West of Your City</u> and <u>Traveling Through the Dark</u>. The title poem of the latter is reprinted in <u>Five Poets of the Pacific Northwest</u>.**

CASEY AT THE BAT

The outlook wasn't brilliant for the Mudville nine that day;
The score stood two to four, with but an inning left to play.
So, when Cooney died at second, and Burrows did the same,
A sickly silence fell upon the patrons of the game.

A straggling few got up to go, leaving there the rest,
With that hope that springs eternal within the human breast,
For they thought, "If only Casey could get a whack at that,
They'd put up even money now, with Casey at the bat.

But Flynn preceded Casey, and likewise so did Blake,
And the former was a puddin', and the latter was a fake,
So on that stricken multitude the deathlike silence sat,
For there seemed but little chance of Casey's getting to the bat.

But Flynn let drive a "single," to the wonderment of all,
And the much-despised Blakey "tore the cover off the ball."
And when the dust had lifted and they saw what had occurred,
There was Blakey safe at second, and Flynn a-huggin' third.

Then from the gladdened multitude went up a joyous yell,
It rumbled in the mountaintops, it rattled in the dell;
It struck upon the hillside and rebounded on the flat;
For Casey, mighty Casey, was advancing to the bat.

There was ease in Casey's manner as he stepped into his place;
There was pride in Casey's bearing, and a smile on Casey's face.
And, when, responding to the cheers, he lightly doffed his hat,
No stranger in the crowd could doubt 'twas Casey at the bat.

Ten thousand eyes were on him as he rubbed his hands with dirt,
Five thousand tongues applauded when he wiped them on his shirt;
Then while the New York pitcher ground the ball into his hip,
Defiance gleamed in Casey's eye, a sneer curled Casey's lip.

And now the leather-covered sphere came whirling through the air,
And Casey stood a-watching it in haughty grandeur there.
Close by the sturdy batsman the ball unheeded sped--
"That ain't my style," said Casey. "Strike one!" the umpire said.

From the benches, black with people, there went up a muffled roar,
Like the beating of the storm-waves on a stern and distant shore.
"Kill him! Kill the umpire!" shouted someone on the stand.
And it's likely they'd have killed him had not Casey raised a hand.

With a smile of Christian charity great Casey's visage shone;
He stilled the rising tumult; he bade the game go on;
He signaled to the pitcher, and once more the spheroid flew;
But Casey still ignored it, and the umpire said: "Strike two!"

"Fraud!" cried the maddened thousands, and the echo answered "Fraud!"
But one scornful look from Casey and the audience was awed.
They saw his face grow stern and cold, they saw his muscles strain,
And they knew that Casey wouldn't let that ball go by again.

The sneer is gone from Casey's lip, his teeth are clenched in hate;
He pounds with cruel violence his bat upon the plate.
And now the pitcher holds the ball, and now he lets it go,
And now the air is shattered by the force of Casey's blow.

Ah, somewhere in this favored land the sun is shining bright;
The band is playing somewhere, and somewhere hearts are light.
And somewhere men are laughing, and somewhere children shout:
But there is no joy in Mudville--mighty Casey has struck out.

--E. L. Thayer*

*E. L. Thayer (1863-1940) was born in Massachusetts and educated at Harvard. He was a newspaper reporter and edited The Harvard Lampoon. Many of his humorous poems and ballads were published in newspapers, but no others ever achieved the popularity of his "Casey at the Bat" which became a favorite recitation of actors and vaudeville performers and was heard in theatres all across our country for many years.

"Cobb Would Have Caught It"

by Robert Fitzgerald*

(For text of poem, see A Wreath for the Sea, distributed by New Directions, 1943.)

*Robert Fitzgerald (1910-) was born in New York State and was educated in England and at Harvard. He worked as a newspaper reporter and magazine writer and was commissioned a naval officer during World War II. Since 1949 he has taught in several American universities. He has been awarded a number of honors for his poetry and his translations of Greek literature.

"Ex-Basketball Player"

by John Updike *

(For poem, see The Carpentered Hen by John Updike; Harper & Brothers, New York, 1958, pp. 2-3)

* [illegible] ability to write a book or kill an animal.

"Salmon-Fishing"

by Robinson Jeffers*

(For poem, see The Selected Poetry of Robinson Jeffers; Random House, New York, 1938; p. 31)

* John Crowe Ransom (1888-) is a native of Tennessee who was educated at Vanderbilt University and spent many years there teaching and writing. He subsequently taught at Kenyon College where

Robinson Jeffers (1887-1962) searched hard for a career before deciding to write. His education included graduate work in English, three years medical study and a year of work in forestry. He settled in Carmel, California, where he built his huge stone house with his own hands. His interests included, he once said, "Stone masonry, tree-planting, swimming, pipe-smoking, drives and walks in the Coast Range, reverent admiration of hawks, herons and pelicans, . . running, wrestling . . . an almost perfect inability to write a letter or kill an animal, love of monotony and wet weather."

"Bells for John Whiteside's Daughter"

by John Crowe Ransom*

(For text of poem, see Selected Poems by John Crowe Ransom; Alfred Knopf, New York, 1963; p. 11.)

* John Crowe Ransom (1888-) is a native of Tennessee who was educated at Vanderbilt University and spent many years there teaching and writing. He subsequently taught at Kenyon College where he was founder and editor of the Kenyon Review. His work is associated with that of prominent Southern writers, John Tate and Robert Penn Warren. He has published much poetry and criticism; anyone wishing to read more of his work might begin with the representative volume, Poems and Essays (1955).

"The Three Companions"

by W. H. Auden*

(For text of poem, see Selected Poetry of W. H. Auden; Modern Library, Random House, [illegible] (N.Y., 1950), p. 17)

*Wystan Hugh Auden (1907-) was born and educated in England but, after much foreign travel (including service with the Loyalists in Spain in 1937), has been a citizen of the United States for many years. He won the Pulitzer Prize in 1948 and has published numerous volumes of verse as well as several verse-plays and operas. His most recent work is well represented by the volume Nones to Ode (1960).

"Naming of Parts"

by Henry Reed*

(For text of poem, see Immortal Poems of the English Language, ed. by Oscar Williams; Washington Square Press, New York, 1955; pp. 604-605.)

*Henry Reed (1914 -) is an Englishman, a war veteran, a journalist and broadcasting script-writer. "Naming of Parts" is the first selection in a longer set of poems called "Lessons of the War" which appears in Reed's book, A Map of Verona (1947).

"Anyone Lived In a Pretty How Town"

by E. E. Cummings *

(For text of poem, see Poems 1923-1954 by E. E. Cummings; Harcourt, Brace & World, Inc., New York)

*E. E. Cummings (1894-1964) was a Massachusetts-born poet, novelist, and painter (whose name was generally printed as "e e cummings" in the original publications of his works). A graduate of Harvard, he drove an ambulance in France during World War I, studied painting in Paris, but spent most of his later life in New York City. His poems have appeared in a collected edition; his best-known novel is probably his early work, The Enormous Room (1922).

*Theodore Roethke (1908-1963) was a [illegible] who taught English at several American colleges and [illegible] and was on the faculty of the University of Washington [illegible] until the time of his death. His poetry has been widely [illegible] and re-published. An [illegible] collection of his prose can be found [illegible] Poet and [illegible] (1965).

"Dolar" spelling

by Theodore Roethke*

(For text of poem, see Words for the Wind, Doubleday, Garden City, New York, 1957, p. 38.)

*Theodore Roethke (1908-1963) was a native of Michigan who taught English at several American colleges and universities and was on the faculty of the University of Washington from 1943 until the time of his death. His poetry has been widely published and re-published. An interesting collection of his prose can be found in On the Poet and His Craft (1965).

"Night Crow"

by Theodore Roethke

(For text of poem, see Words for the Wind; Doubleday, Garden City, New York, 1958; p. 58)

"The Man of the House"

by David Wagoner

POEMS FOR FURTHER STUDY

(For text of poem, see Poems by David Wagoner, 1959.)

~~"The Fruit of the Tree"~~
"The Man of the House"
~~by David Wagoner~~
by David Wagoner

~~(For text of poem, see The New Yorker Magazine.~~
(For text of poem, see Poems by David Wagoner, 1959.)

"The Fruit of the Tree"

by David Wagoner

(For text of poem, see The New Yorker Magazine, August 22, 1964)

"Fall Wind"

by William Stafford

(For text of poem, see Through the Dark, Harper and Row, New York, 1962, p. 70)

"[illegible]"

by William Stafford

[For text of poem, see West of Your City, by William Stafford; Tillamook Press, Los Gatos, California, 1960]

"The Great Blue Heron"

by Carolyn Kizer

(For text of poem, see The Ungrateful Garden by Carolyn Kizer, Indiana University Press, Bloomington, Indiana, 1961; pp. 68-70.)

"Sale"

by Josephine Miles

(For text of poem, see Poems--1930-1960 by Josephine Miles; Indiana University Press, Bloomington, Indiana, 1960; p. 78.)

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SCIENCE AND POETRY

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SCIENCE AND POETRY

Has it ever occurred to you that poets and scientists have something in common? If you see the scientist as someone in a white lab coat, conducting experiments as drily as he writes, it may surprise you to hear the noted physicist Dirac say: "It is more important to have beauty in one's equations than to have them fit experiment." What does beauty have to do with science, you may well wonder. But certainly more and more scientists and mathematicians are using such words as "elegance" and "harmony" to describe theories that will account for the available facts. Even when all the facts are not known, the ideal theory will prepare for their discovery. Hence, the scientist, no less than the poet or the painter, needs a sense of design and order. In the words of Albert Einstein:

> (For passage, see The World As I See It by Albert Einstein; Covici Friede, Inc., New York, 1934; beginning on p. 20 with "Man tries to make for himself. . ."; and ending on p. 21 with ". . . whirlpool of personal experience.")

You will note that Einstein emphasizes the deep need of the scientist to impose order upon the chaos of experience. It is, Einstein says, like the need of a man who wants to get out of a crowded, noisy city into "the silence of high mountains where the eye ranges freely through the still, pure air and fondly traces out the restful contours apparently built for eternity."

Now that you have heard the scientist talking like the high priest of beauty, you will perhaps not be surprised to find poets saying things like: "Poetry must be mathematical in its exactness." To think of the poet as a wild-eyed, unkempt creature could be as mistaken a notion as to think of the scientist as a cold, machine-like person. Just remember that Wordsworth defined poetry as "emotion recollected in tranquillity", a definition that suggests the poet's need to make a meaningful pattern of his experience. Although the criteria of truth differ in poetry and science, both poets and scientists seem to agree that in some way, beauty and truth are inseparable. What Keats thought he had learned from the Grecian urn--"Beauty is truth, truth beauty"--begins to make some sense to us, now that we are becoming more aware of how the creative mind works.

It will not do, then, to think that the scientist describes a "real" world and the poet a make-believe world. Through experiments, it appears that the scientist can verify his theory, whereas no instrument

has yet been devised to measure the truth of a poem. Yet generations of readers may indeed be able to testify to the truth of a poem such as Homer's Odyssey, not by using scientific instruments, but by reliving the experience provided in the poem. It may take longer to "verify" a poem than a scientific theory, but perhaps the truth of the poem is finally more unshakable than the truth of a scientific theory. As you are well aware, scientific theory is constantly undergoing change: the physics of Newton gave way to the physics of Einstein. Remember, too, that the scientist's instruments cannot be any more reliable than he is. An English physicist has stated that "man selects what he observes and disturbs everything he measures". In other words, even the scientist does not take notice of everything in the universe, nor can he measure anything without altering its normal function. In many ways, the scientist's universe is constructed within his own mind, just as the poet creates his own world in his poetry. One is no more real than the other.

The following selections are arranged according to such physical characteristics as color and form, size and space, motion and change, with a concluding section on some aspects of man's relation to nature. At the end of the whole unit, you will have a chance to write about similarities and differences between the poet and the scientist in their approach to experience. Until then, keep your mind open. Don't assume that the scientist is cold and the poet emotional, or that the scientist deals with the real world and the poet with a make-believe one. You may be in for some surprises when you read the following selections.

"Words of Science"

by Isaac Asimov

(For text, see Words of Science: Houghton Mifflin Co., Cambridge, Massachusetts, 1959; passage beginning on p. i with "Most people have had at least . . ." and ending on p. ii with ". . . in favor of that view." and passage beginning on p. 191 with "Pleistocene. The main eras of the earth's history. . ." and ending on p. 192 with ". . . (6) Holocene, the whole of the new.")

Study Questions

1. Language is a living, growing thing. We are constantly adding new words and phrases, and expanding the meaning of old words and phrases. Whenever we look closely at words, we can agree with Asimov, who points out that a scientific vocabulary has grown up with our space adventures. See if you can make a list of some of the words with which Americans have grown familiar over the past decade, and now use casually in conversation. Can you discover how these new words came into being? Are any of them "coined" Greek and Roman words? Cite a number of examples, and explain how each word originated.

2. Asimov points out in this essay that one important by-product of using a so-called "dead" language to create scientific terms has been the creation of an international scientific vocabulary. Can you find any scientific terms "coined" in the last decade that are used both in Russia and America?

I. COLOR AND FORM

"Life's Improbable Likenesses"

by Julian Huxley

(For text, see New Bottles for New Wine by Julian Huxley; Chatto & Windus, London, 1957; beginning on p. 137 with "There is a Japanese legend which tells of the sequel. . ." and ending on p. 154 with ". . .learnt from life's improbable resemblances.")

Study Questions

1. Many insects and birds have coloration that is attractive enough to the human eye to suggest the work of an artist. In this essay, what kind of purpose does the scientist see as governing the patterns which we admire on many birds and insects? Is this the kind of purpose that an artist has in painting a picture?

2. Can you tell anything of the writer's attitude from his writing? Is this the coldness of the scientist who records what he sees but leaves his feelings out of the picture? In the fifth paragraph, for example, what does the adjective "astonishing" tell us about the writer's attitude? Find other clues in the essay and look particularly at the conclusion.

3. What seems to have induced this scientist to this minute observation of things in nature? Why go around examining insects and crabs?

Exercises

1. Huxley has given us an interesting and logical explanation of why many mammals, birds, and kinds of marine life bear uncanny resemblances to other things. Try an experiment of your own. Go into the library and find a book about birds, fish, or insects that is lavishly illustrated. (They abound on the science shelves.) Turn slowly through, noting any unusual or interesting characteristics that you feel would serve as an example for Huxley's theory. Write down the name of the bird, animal, or insect, and describe the unusual shape or marking carefully.

2. Have you ever observed any unusual markings on birds or insects? Can you think how such markings may have helped them survive? If so, write a paragraph explaining your theory.

Fragmentary Blue

from "New Hampshire"

by Robert Frost

(For text of poem, see Complete Poems of Robert Frost; Holt, Rinehart & Winston, New York, 1964; p. 267.)

Study Questions

1. What question is the poet asking? Does it differ at all from a question that a scientist might ask?

2. Is Frost talking about anything else besides the color blue?

3. Does the use of the word "savants" imply any attitude to scientists?

Exercise

We can readily see why Frost thinks of the color blue (as glimpsed here on earth in birds and flowers) as a symbol of a little bit of heaven. We associate other colors with various things, too. For example, green is thought of in connection with living things--we associate it with spring, budding trees, grass, even the smell of new-mown lawns. Can you think of other examples that will show how such associations have affected our feelings about colors? If so, write a short paragraph explaining why some colors carry certain connotations. (One way to find out will be to check your own reaction. Say the name of a color a few times to yourself and write down the things it calls to mind.)

Nothing Gold Can Stay

from "New Hampshire"

by Robert Frost

(For text of poem, see Complete Poems of Robert Frost; ibid., p. 272.)

Study Questions

1. Does gold in this poem mean more than a color?

2. What is the Garden of Eden doing in this poem? How does this allusion support the poet's generalization?

The Shape of Snow-Flakes

from "I'm From Missouri"

by Magnus Pyke

(For text, see "I'm From Missouri" in The Listener, May 16, 1963; British Broadcasting Corp., London; p. 829 beginning "There is a character in American . . ." and ending on p. 832 with ". . . theoretical explanation could be drawn.")

Study Questions

1. Why does the writer introduce his article by mentioning the man from Missouri?

2. Why has the writer called the minds of fish "pleistocene"? See the explanation of the term given by Isaac Asimov in his Words of Science and read his introduction, then discuss the question of whether scientists should use only "easy" words.

3. What is the scientist's main interest in the snowflakes?

4. If scientists have their questions answered mainly by experiments performed scientifically, how do you think that poets find answers to their questions? Look back, for example, at Frost's poem "Fragmentary Blue".

5. Do you think that the poet and the scientist are looking at the same world? Or could the poet be constructing a world from his imagination? Could the scientist also be constructing a world that seems to fit the facts of his experience? Could we say that two different kinds of experience are involved?

6. Do the words "rhythm" and "pattern" have anything in common? Could you invent a definition that would show what these things have in common, one represented by a time term, the other by a spatial term?

"The Shape of Raindrops"

by James E. McDonald

(For text, see "The Shape of Raindrops" by James E. McDonald in The Scientific American, February, 1954; Scientific American, Inc.; pp. 64-68.)

Study Questions

1. What does the writer mean when he says that "the real picture" of the raindrop is "esthetically less satisfying than the teardrop fiction"? How does the contrast between art and scientific fact act as a device for presenting some scientific findings?

2. Why will cartoonists and commercial artists continue to represent raindrops as teardrops, rather than hamburger buns, in spite of scientific information that could affect their drawing?

3. What contrast is implied between the cleverness of the raindrop in "managing its own affairs" and its insignificance as it splatters down "on some dusty road at the beginning of an August thunder shower?" Does this contrast seem to give the raindrop almost human qualities, and if so, why should the writer wish to humanize a raindrop?

Exercise

The author points out that our common concept of the raindrop is entirely wrong. We have pictured it in our mind as similar to a teardrop because we commonly see it illustrated thus. Can you think of other scientific inaccuracies that we have grown to think of as accurate? (For example, we usually think of a star as being five-pointed. Is this accurate?) Select several of what you consider to be the best examples you can find and write a few paragraphs about your discoveries.

"Anecdote of the Jar"

by Wallace Stevens

(For text of poem, see The Collected Poems of Wallace Stevens; Alfred Knopf, Inc., 1951.)

Study Questions

1. What contrast does this poem make? Look at the first stanza and especially at the adjectives.

2. What is the effect of the jar on the wilderness?

3. Is this a very special jar? If so, why is it "gray and bare"?

4. What rhymes can you find in the poem? What is their effect?

5. You have seen that snow flakes and rain drops have characteristic shapes; do you think that Stevens is justified in placing art (or a man-made object) in such emphatic contrast with nature?

6. Do you begin to see an interest that scientists and artists (including poets) have in common? How do they differ in their pursuit of this common interest?

Exercise

You read Stevens "Anecdote of the Jar" in which a sharp contrast is drawn between the man-made world and nature. Man often tries to have the objects he creates blend with the world of nature. For instance, an architect is usually concerned with the problem of designing buildings and houses that blend into and become a part of the landscape. Yet there are always many examples to be found of how man has distorted nature. Often billboards blot out the view along our highways. Can you think of other ways that man has abused nature, or allowed his man-made structures to clash with nature?

COLOR AND FORM: CONCLUDING EXERCISE

In the poems and essays you have just read, note how important a part description plays. Reread some of the descriptive passages carefully. Now try describing some objects yourself. You will need to observe whatever you are describing very carefully before beginning. Note the little things that might go unnoticed by a casual observer. Be careful to be accurate. Use one of the following or choose a similar topic:

a garden snake

a young colt

a sparrow

a cricket

a small, nondescript dog

a tall fir

II. SIZE AND SPACE

"On Being the Right Size"

by J. B. S. Haldane

(For text, see Possible Worlds by J. B. S. Haldane; Harper & Bros., New York, 1928; beginning on p. 20 with "The most obvious differences between different animals. . ." and ending on p. 28 with ". . .grasshopper could rise six feet into the air.")

Study Questions

1. Is there anything in the first paragraph that links this selection to the theme of several selections in the preceding section?

2. Why does Haldane refer to pictures of giants in illustrated children's books? In what essay that you have already read does the writer make a similar point: that we are willing to accept inaccuracies of representation that the scientist must criticise in his role as scientist?

3. List the advantages and disadvantages of large size for a creature living in our world.

4. Does this writer show you the world from an angle different from the one you ordinarily see from? Consider, for example, the statement: "A mouse could not distinguish one human face from another six feet away."

It Is Not Growing Like a Tree

by Ben Jonson

It is not growing like a tree
In bulk, doth make Man better be;
Or standing long an oak, three hundred year,
To fall a log at last, dry, bald, and sere:
A lily of a day
Is fairer far in May,
Although it fall and die that night--
It was the plant and flower of Light.
In small proportions we just beauties see;
And in short measures life may perfect be.

Study Questions

1. By what standard is the poet judging size and length of life? Can you contrast this standard of judgment with that used by Haldane in the preceding selection?

2. Is Jonson talking about anything besides a tree and a lily; is he using these as illustrations of something else? If so, what?

"The Milky Way and Beyond"

by Sir Arthur Eddington

(For text, see "The Milky Way and Beyond" by Sir Arthur Eddington with editorial comments by Samuel Rapport in A Treasury of Science, ed. by Harlow Shapely, Samuel Rapport, Helen Wright; Harper & Bros., New York, 1958.)

Study Questions

1. Why has Eddington described the spiral nebula as forming a flat coil "rather like a watch spring" and rotating "like a Catherine Wheel"?

2. What is the effect on you as you read an account of distances and temperatures of stars? Does Eddington view these enormous numbers differently from the way you view them?

3. What contrast does Eddington draw in the first paragraph between the scientist's view of the Milky Way and the casual observer's view?

4. By the end of this selection, have you indeed come to regard the earth as a "tiny planet" and the universe as a "nightmare of immensity"? Perhaps you will be ready to sympathize with Walt Whitman in the following little poem:

When I Heard the Learn'd Astronomer

When I heard the learn'd astronomer,
When the proofs, the figures, were ranged in columns before me,
When I was shown the charts and diagrams, to add, divide, and
measure them,
When I sitting heard the astronomer where he lectured with much
applause in the lecture-room,
How soon unaccountable I became tired and sick,
Till rising and gliding out I wander'd off by myself,
In the mystical moist night-air, and from time to time,
Look'd up in perfect silence at the stars.

But if this poem suggests that poet and scientist have parted company, look back at Eddington's first paragraph and ask yourselves whether he, the scientist, is really incapable of feeling the beauty of the stars. Then turn to the next selection for further evidence that the science of astronomy has not ruled out poetry.

Exercise

[The following suggestion is for students especially interested in science.]

In scientific prose--if it is really readable--the author is just as much interested in having us understand, visualize, and appreciate his facts as a writer of fiction is interested in having us become engrossed in the story he is telling. Therefore, in articles like "The Milky Way," the way a writer says something is part of what he says. In this essay an author has taken a great many difficult concepts and numbers so large as to be meaningless at first and made them all tremendously exciting. How has he accomplished this? Is he talking directly to the reader? Why? Try taking some facts and figures concerning some scientific subject (ask your science teacher to help you select a suitable one) and rewrite them, doing your best to retell them in a conversational tone.

"Legends of the Stars"

by Patrick Moore

(For text, see "Legends of the Stars" from The Listener, December 19, 1963; The British Broadcasting Corp., London; pp. 1032-1033.)

Study Questions

1. How do the names of the constellations link the imaginative view and the scientific view of the stars?

2. What is inaccurate about the term "constellation" as applied to a group of stars?

3. Is there any contrast between the names of the ancient groups of stars and the more modern groups? Why should there be this difference?

Exercises

1. You have probably read myths, either in school or by yourself--stories of gods and goddesses, of monsters and maidens. Are there any terms in this essay which you were already familiar with from reading myths? Make a list of the various mythological terms referred to in this unit. Are there any you need to know more about? Ask your librarian to help you find an available book on myths. Look up the terms you checked. If possible, observe the various constellations yourself. Then explain why you think the particular name fits or does not fit.

2. Man named the stars and constellations after various gods and goddesses, drawing heavily on the myths of the Greeks and Romans. Today, man is still employing the same techniques. The Gemini space capsule carried two Americans aloft in 1965. Can you explain why such a name was appropriate for this flight? Can you find other such names that have been bestowed upon space flights, rockets, missiles, etc.? Read about some of the more recent space flights and guided missiles in your library. Then write a few paragraphs showing how man has used mythology in the twentieth century to chart his course into space.

"Desert Places"

by Robert Frost

(For text of poem, see Complete Poems of Robert Frost; ibid., p. 386.)

Study Questions

1. You have seen scientists talking of one thing in terms of another; Eddington, for example, talks about the structure of atoms in terms of crinolines. Now you can observe how a poet also talks of one thing in terms of another. What is Frost talking about when he describes the deserted field; why does this field interest him enough to make him write a poem about it? At the same time, you should consider the radical difference between the way a scientist uses analogy (look this word up if you don't know it) and the way a poet uses it in a poem.

2. In the last stanza, the poet introduces a second image of a desert place. Could he have reversed the order of these two images, ending the poem with the empty field, or is there a good reason for the order of the images as they stand?

3. Is Frost's nightmare the same as Eddington's, do you think?

Exercise

Robert Frost tells us that lonely though space may be, he, too, has his "desert places." It is true that man has solved many of the problems in the realm of science during this century. His "outer" problems are coming under control. But other people as well as poets have noted that man's inner conflicts have continued to cause concern. The poet Shelley once noted in his Defense of Poetry that while man has enslaved nature he has remained a slave himself. It is the business of poetry, as he saw it, to free man from himself, so to speak. Can you think of some ways in which man remains enslaved, in spite of the advances of science in our century? Write a paragraph explaining your views.

III. MOTION AND CHANGE

"The Changing Year"

by Rachel Carson

Thus with the year seasons return.

--Milton

(For text, see "The Changing Year" from The Sea Around Us by Rachel Carson; Oxford University Press, New York, 1951; beginning on p. 28 with "For the sea as a whole. . ." and ending on p. 36 with ". . . chemicals to repeat the magic of spring.")

Study Questions

1. How is our usual idea of the sea altered by what the scientist has to tell us?

2. For each season, what parallels does the writer draw between sea and land?

3. Is this essay what you expect of scientific writing? Does the writer's feeling for the beauties of nature interfere at all with the conveying of information or is the style consistent with the kind of information that she wants to convey?

4. Near the end of the essay, Rachel Carson uses an expression that may puzzle you: she speaks of "unconscious purpose" in the "sluggish forms of the copepods hibernating on the bottom" of the sea. What does she mean by this expression? How much of nature does it include? Perhaps it will help if you take into consideration what a poet and scientist, Goethe, said: "Life's purpose is life itself."

Exercises

1. Rachel Carson quotes Joseph Conrad's description of the winter sea. Can you find other descriptions of the sea during the changing seasons in novels, stories, and poems you have read recently? (Do not forget to look again at Hemingway's Old Man and the Sea, Steinbeck's The Pearl, and perhaps some of the poems you have studied earlier as well.) Write down some of the descriptions you like best, being careful to give the source. Share them with the rest of the class.

2. There is surely some spot of earth--or sea--with which you have been familiar for a long while. Without actually thinking about it, you have observed the seasons come and go, and you have seen the place change with the changing seasons. Select some place--perhaps, if you live there, the Willamette Valley or the Puget Sound area, or, if you know it well, some place on the Coast. If you have lived for awhile in Alaska, or Hawaii, or the Southwest, that may be your choice. Write a carefully detailed description of this region in the spring, in the summer, in the autumn, in the winter. Include such details as the changing skies, the wind, the rain, sunshine, vegetation, the sounds and movements and life of this region.

Gerard Manley Hopkins, "Spring"

As a poet's picture of spring, the first eight lines of this sonnet are included here for comparison with Rachel Carson's description of the seasons as they affect the sea.

Nothing is so beautiful as spring---
  When weeds, in wheels, shoot long and lovely and lush;
  Thrush's eggs look little low heavens, and thrush
Through the echoing timber does so rinse and wring
The ear, it strikes like lightnings to hear him sing;
  The glassy peartree leaves and blooms, they brush
  The descending blue; that blue is all in a rush
With richness; the racing lambs too have fair their fling. . . .

Study Questions

1. Can you describe the point of view in this poem? Where does the poet seem to be as he looks at nature? What aspect of spring affects him most?

2. Can you compare this picture of spring on the land with Rachel Carson's picture of spring on the sea? What similarities are there; what differences?

Exercises

1. In "Spring," Hopkins has used some unusual comparisons to transmit to us his feeling about spring. Reread the poem. If it were rewritten with all the comparisons removed, would it be as effective? Can you explain why?

2. Can you think of some unusual way to express your feeling about autumn? If not, look at a few poems about autumn; you might find a copy of Keats' "Ode to Autumn" and Robert Frost's poem, "After Apple Picking." Are any of the expressions especially striking? Why? Copy them down and read them to the class, explaining why you like them.

"On the Grasshopper and the Cricket"

by John Keats

The poetry of earth is never dead:
When all the birds are faint with the hot sun,
And hide in cooling trees, a voice will run
From hedge to hedge about the new-mown mead;
That is the Grasshopper's--he takes the lead
In summer luxury, --he has never done
With his delights; for when tired out with fun
He rests at ease beneath some pleasant weed.
The poetry of earth is ceasing never:
On a lone winter evening, when the frost
Has wrought a silence, from the stove there shrills
The Cricket's song, in warmth increasing ever,
And seems to one in drowsiness half lost,
The Grasshopper's among some grassy hill.

Study Questions

1. What does the poet mean by "the poetry of earth"? How does the word "poetry" come to stand for things other than verse on the page?

2. Is the first line of the poem a statement of fact or of point of view?

3. How does the poet support this generalization at the beginning of the poem?

4. What contrast runs through the poem and helps to unify it?

Exercise

Keats calls the sounds of the grasshopper and the cricket the poetry of the earth. Actually, the earth is filled with little musicians. If you go out into your yard late on a spring or summer evening, when everything is still and quiet, you will hear a number of small voices. Often you can track them down and identify the tiny musicians. You might try this and write an account of your experience, or, if you prefer, go into the library and see if you can find out exactly how a grasshopper or a cricket or a frog makes music. Try to write down the facts clearly and simply in a few paragraphs. Avoid too many scientific phrases and technical terms. Try to make your reader see the grasshopper and the cricket as small creatures with their own personalities.

"Celestial Navigation By Birds"

by E. G. F. Sauer

(For text, see "Celestial Navigation by Birds" by E. G. F. Sauer in The Scientific American, August, 1958; beginning on p. 42 with "In spring and summer the songbirds. . ." and ending on p. 47 with ". . . across continents and oceans by the map of the stars.")

Study Questions

1. What question provides the excuse for the article? Is there still an unanswered question at the end?

2. What is a planetarium? Why is it useful in testing the navigation of birds?

3. What evidence is there that birds possess a sense of time? Does it differ at all from a human being's sense of time?

4. Pick out some words that indicate the scientist's attitude to his experiments. Where do these words appear in the essay and for what reason do they appear only at particular points in the essay?

Exercises

1. In an article entitled "A Sense of Wonder,"* Rachel Carson has described an interesting experiment concerning migratory birds, one which anyone could easily undertake. If, she tells us, we will find a place out of the wind--such as behind a house or shed--just after dark and stand still, listening intently, we will hear the cries of migratory birds. She says that such an experience never fails to bring to her the loneliness of great spaces. She adds that if the moon is full, and one has a small telescope, he can see the small travelers cross the moon, going from darkness into darkness. If it is at all possible, try this for yourself. Write a paragraph about your experience.

2. The United States is crossed by several "flyways"--bird highways in the sky. Find some information about the flyway nearest you. At what season is it used most extensively? Where are the birds going that travel it? Where have they come from? You will find this information available in your school library. Write a report explaining your findings.

*McCall's Magazine, June, 1965.

MOTION AND CHANGE: CONCLUDING EXERCISE

Nothing in nature is changeless. We have read Carson's descriptions of the changing seasons, and of their effect on the sea. Other selections treated similar themes. Can you think of some of the things constantly changing according to a "pre-ordained" plan? There are the trees, for example, and there is moisture, which changes from clouds to rain. What else can you think of? Select one thing and describe in detail the changes which occur over a given period of time. Be careful to be accurate and detailed in your descriptions.

IV. MAN'S RELATION TO NATURE

"Earth's Green Mantle"

by Rachel Carson

(For text, see "Earth's Green Mantle" in The Silent Spring by Rachel Carson; Houghton Mifflin Co., Boston, 1962; beginning on p. 63 with "Water, soil, and the earth's green mantle. . ." and ending on p. 83 with ". . . be turned to man's advantage.")

Study Questions

1. What does Rachel Carson mean by such expressions as "a web of life" and "a natural system in perfect balance"?

2. What is the significance of the sage on the lands of the high western plains? Do you think that Rachel Carson has chosen this example for any particular reason?

3. Why would Rachel Carson at the end of her book attack the expression "control of nature" in these words: "The control of nature is a phrase conceived in arrogance, born of the Neanderthal age of biology and philosophy, when it was supposed that nature exists for the convenience of man." What does she see as the proper relationship between man and nature?

4. Why does the writer advocate more use of plant-eating insects, instead of indiscriminate use of chemical weed killers?

5. Are there any words or expressions to indicate the writer's involvement with what she is reporting? Is this "dry" scientific writing? If it is not, then look for qualities in the writing that keep it from dryness.

Exercise

Rachel Carson uses man's destruction of sagebrush as an example of his unthinking and dangerously foolish attitude toward the preservation of nature's delicate balance between plants and land, and plants and animals. Recently there has been some discussion in the Northwest over the spraying of the roadsides. Some people feel that this causes needless destruction of wild life and destroys beneficial plants as well as harmful ones. They also point out that it leaves unsightly dead brush along the roads. Others feel it is an economical way to keep the roads neat. Think it over and decide how you feel about it. Plan to use some specific, concrete examples to back up your point of view. Then write a few paragraphs arguing your case--for or against.

"Moss-Gathering"

by Theodore Roethke

(For text of poem, see The Lost Son and Other Poems by Theodore Roethke; Doubleday, Garden City, New York, 1948; p. 17.)

Study Questions

1. Why does Roethke refer to the moss as "like an old-fashioned doormat" and "carpets of green"? Do these expressions indicate any way of looking at the moss? Is there anything wrong with moving doormats and carpets?

2. How would you describe picking moss? Would you have noticed the "crumbling small hollow sticks on the underside," for example? Why are these useless things caught up in the roots of the moss?

3. Does this description differ from a scientific description? Does the purpose of the description affect the choice of details?

4. Could you formulate the question that the poet is trying to answer in this poem?

5. Is it fitting that the word "cemetary" occurs in the second line?

6. Do the words "rhythm" and "natural order" have anything in common? Why should these things be respected? Do Roethke and Rachel Carson agree in their view of nature?

Exercise

Theodore Roethke speaks of his feeling that he had somehow broken the natural order of things by gathering the moss from the swamp, had indeed "committed against the whole scheme of things a desecration." Rachel Carson would have understood his sensitivity, even though his moss-gathering was indeed harmless. Think back over the past summer or so, and see if you can recall ever having noticed the wanton destruction of wild plant life. Have you ever watched large trees being uprooted to make way for a freeway? Tell about any incident you can recall, explaining the necessity or the purpose for such action, if there was one. Describe the process in detail and explain how you felt about it. Would you feel differently, after reading Miss Carson's essay and Theodore Roethke's poem?

CONCLUDING EXERCISES

1. Imagine that you are a scientist: what question about the universe would you most like to have answered? You may even have some procedure in mind by which an answer could be obtained. Then take this same question and imagine that you are a poet who can find his own answer in his point of view and does not need a lab for testing his idea. For example, Robert Frost gives his kind of answer to such a question as why the leaves of early spring are golden for such a short time. A scientist would attribute this same phenomenon to the presence of carotin in the early leaves, whereas Frost simply observes, "Nothing gold can stay."

2. State as clearly as you can the purpose of comparisons in poetry and in scientific writing. Is there any important difference between these two uses?

3. Refer back to the Einstein quotation in the introduction to this unit; then discuss whether the scientist and the poet are likely to draw closer together in the future. What sort of factors might cause them to draw closer together or farther apart? You might want to take into consideration two pairs of selections that you have already read; for example, Eddington's "The Milky Way" and Whitman's "When I Heard the Learn'd Astronomer", or Rachel Carson's "Earth's Green Mantle" and Roethke's "Moss-Gathering"

Suggestions, Exercises and Composition Topics

1. It is true that a scientist is often objective and a poet often subjective. It will perhaps help you to understand the differences in these approaches if you try writing a paragraph, first using an objective approach and then employing a subjective one. When you write your first paragraph remember to include all the recognizable, absolute facts possible. Be concrete. Never state an opinion. In the second paragraph tackle the same subject again. This time allow yourself to say how you feel about your subject. Be emotional if you like. When you finish, reread the two paragraphs. Which do you consider the better? Why? Which is the more accurate? Why? Is either untruthful? Why or why not?

Either use your own topics or choose one of these:

A boy kicking a kitten
A group of children jeering at a deaf-and-dumb child
A man preaching intolerance on a street corner

(If you select your own topic, select one that will allow you a strong reaction.)

2. Both scientists and poets have a common goal: they both seek to impose order upon a seemingly chaotic world. Sometimes different methods are employed. Why not try your hand at "looking" first with a poet's eye, and secondly from the point of view of a scientist, at the following list. Write two short paragraphs each for three of these.

a. A deep-red rose blooming by a fountain
b. A goat standing on a rock, overlooking the sea
c. The sky, filled with fast-moving white clouds
d. A small brown girl, standing beside a palm tree, clutching a shell in her hand
e. A sea-shell (perhaps you will recall the poem "The Chambered Nautilus")
f. A field of wheat, tall and green, ruffled by the breeze.

3. Shelley has sometimes been called a poet's poet, partly because of his deeply subjective approach. Yet he used scientific facts effectively in some of his poetry. Ask your librarian to help you find a copy of "The Cloud." Read it carefully and list some of the scientifically accurate information in it. Then select some of the statements you consider "pure poetry." How do they differ?

Write a paragraph explaining how Shelley used scientific facts to create "The Cloud." (Can you find any other poems that also employ scientific fact? If so, make a list to share with the class.)

4. Rachel Carson's scientific writing has a certain "poetic" warmth. It is far from a cold, objective approach. Look over the selection from her "The Sea Around Us" in this unit again. Note her descriptions, figures of speech, comments and conclusions.

Now in a short paragraph or two try to describe "The Woods Around Us" with the same careful attention to accuracy and the same feeling for beauty. How successful were you?

5. Read the various references to the sky in the poems in this unit. Now turn to some of the prose articles and look again at a statement or two about the heavens. What differences are apparent? How do you know? Write a paragraph or two explaining these differences.

6. Without an imagination to aid him in seeing beyond the present, a scientist would not be very effective. Look up something about several of the great scientific discoveries of the past (for example, Harvey's discovery of the circulation of the blood, Koch's discovery of the bacteria that cause tuberculosis, Pasteur's discovery of "pasteurization" of milk, Morse's invention of the telegraph or Edison's of the phonograph, etc.). Select one and write a paragraph showing how you feel an imaginative approach made the discovery possible.

7. This unit perhaps has helped you to see that a scientist and a poet are not so far apart after all, although there are differences. Select the prose article and the poem that you most enjoyed. Write a short paper in which you consider the following: What similarities do you see in the two? Differences? Which did you like best, the poem or the prose selection? What (if anything) did you dislike about either?