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Huxley College of Environmental Studies at Western has just completed its first year under the leadership of Dr. Ruth Weiner. Named dean of Huxley in the fall of 1974, Dr. Weiner recently reflected on this past year and talked about Huxley's role and the problems the cluster college faces now and in the future.

Dean Weiner began by outlining Huxley's goals and defining its purpose as a college of environmental studies.

"We really try to have a holistic approach to education," she said, noting the interdisciplinary nature of Huxley's faculty. "We try to integrate what we're giving the students while they are in class, including material from each of our various disciplines," she said.

"As a result, we, as faculty, are broadening ourselves beyond what we learned in graduate school. We don't consider that expertise ends with earning the Ph.D., or that one's only expertise is in the field of one's Ph.D.," she continued.

Dr. Weiner said a second goal of Huxley is to look very hard at the definition of what environmental studies is.

"We are still in a stage where environmental studies is a little of this plus a little of that plus a little of something else," Dr. Weiner said. "But fundamentally, it's a new discipline and where environmental studies will be ten years from now is not biology, plus education, plus ethics. We are defining a new discipline."

Social Sciences, Humanities

"This is not an engineering school," Dr. Weiner pointed out. "It is also not a school of environmental science. Right now Huxley is not strongest in the hard-sciences component; but instead, its strength lies in the social sciences and humanities components. We do, however, need to strengthen the hard-science component somewhat and we need to work more closely with the College of Arts and Sciences."

Dr. Weiner said the Institute for Environmental Studies at the University of Washington handles the field of environmental science adequately for this region right now. At present, there are no plans for duplicating that program at Huxley.

The college recently submitted plans for a masters program which will stress two areas at Huxley—environmental planning and policy and administration.

"Again, with our masters program, we are not intending to go for a technologically oriented master of science," Dr. Weiner emphasized. "That is also done very well at the U of W and our graduates who want to go in that direction should attend the university."
I'd like to strengthen what we've got now."

"Unusual Program"

Dr. Weiner said that Huxley, at present, is a "very unusual program" and noted that there are only about 20 such programs across the country. Huxley has departed from the usual environmental studies concept, where the programs comprise what she termed a "smorgasbord of courses" taken from various departments and schools within an institution.

"I feel very strongly about our conviction that we professors of environmental studies do not wish that we were back as professors of chemistry or whatever," Dr. Weiner said. "In this one sense I have resisted suggestions that Huxley move into more joint appointments. If a person becomes a professor of environmental studies he has made the leap into a new discipline."

Another goal Dr. Weiner has in mind for Huxley is that of retaining and strengthening the problem-oriented approach, which is one of Huxley's strongest points as she sees it. All Huxley students who graduate with a B.S. degree are required to complete a problem series which is similar to a senior or honors thesis. Most of the problem series projects deal with real environmental problems in the Whatcom County or north Puget Sound area. That, Dr. Weiner believes, gives students a strong sense of the relevance of what they are learning.

On the subject of growth, Dr. Weiner feels that Huxley and other areas at Western are understaffed for present loads, largely due to inadequate funding by the state legislature.

"There are areas that every environmental studies program needs that just don't exist at Huxley," Dr. Weiner said. "We are notoriously weak in the areas of policy administration and economics." She sees the need to increase the staffing in each of those areas, which are currently funded for one-half-time faculty.

Dr. Weiner praised the current cooperative programs Huxley has with journalism, biology, Fairhaven College and geography and said plans are now in force to improve similar programs with the physics and chemistry departments.

"I'm beginning to share the students' feelings that we don't want to get much bigger," Dr. Weiner said. "The number around which there seems to be a consensus for the ideal Huxley size would be something like 20 faculty. Right now we have 12."

Ideal of 300 Students

There are approximately 200 students at Huxley now and Dr. Weiner thinks an ideal number of students would center around 300. But she is careful to add that the number depends largely on an adequate funding level for faculty.

"I would also like to see us allow more time for faculty research," Dean Weiner stated. "This is actually, compared to the rest of the faculty at Western, a very well-published faculty, but faculty research is an area of potential growth."

The Aquatic Studies Program at Shannon Point is another area Dr. Weiner would like to see grow. That facility, which took a large funding cutback in the current legislative session, is underfunded and underutilized, in Dr. Weiner's opinion.

Good Facility

"We've got a good facility at Shannon Point," Dr. Weiner said. "We must get grant-funded research there—and I believe we can—it is a matter of a slight shift in orientation."

Dr. Weiner also wants to see Huxley seek outside funding for workshops and special seminars.

"And I would dearly love to see us get an endowed chair," she said. "That's my kind of dream. We have a unique opportunity here to offer programs that just can't be offered anywhere else in the United States, where you combine the classroom with the outdoors."

Dr. Weiner sees Huxley as a tremendous asset to Western as an institution with the cluster college attracting students who wouldn't otherwise come to Western.

"From the point of increasing enrollment, Huxley is a growth area at Western. We can see it right now. Our expected enrollment for fall, 1976, is 100 per cent greater than it was at this time last year."

If Huxley College is permitted to grow, Dr. Weiner maintains that the entire institution will benefit as a result. She cited statistics indicating that the average Huxley student now takes about one-third of his credits on the upper campus during his or her two-year stay.

In conclusion, Dr. Weiner stated that Huxley College is trying to develop an attitude toward the earth that preserves it. "That's why our students are here; that's what they came for."

Students win Huxley awards

Ten students at Huxley College for Environmental Studies have been presented with Huxley's 1974-75 awards for student accomplishment in various academic fields.

The Thomas Henry Huxley medal for excellence in environmental studies, the college's top award, went to Gail Bingham from Bellevue, a graduate in environmental planning at Huxley. Bingham was also presented an award for scholarly achievement and represented Huxley College at a WWSC commencement breakfast honoring outstanding graduates.

Terry J. Waddle of Wenatchee received the undergraduate research award for his work in computer application to environmental studies. He graduated with a degree in environmental planning.

Huxley's community service award went to Christopher Abel, also a graduate in environmental planning. He was cited for his service on Huxley College committees, as co-coordinator of the Huxley Environmental Reference Bureau and as editor of the Huxley Humus, a newsletter produced by the college.

Receiving awards for scholarly achievement were Donald J. Disrael of San Diego, a graduate in ecological systems analysis; Molly Adolfson of Chehalis, who received a degree in environmental studies; Steven Mills of Coeur d'Alene, a graduate in ecological systems analysis; and David Goldsmith, an environmental planning graduate from Spokane.

Also receiving scholarly achievement awards were Darryl Bullington of Bellingham, a March graduate with a degree in ecological systems analysis; Paul Woodcock, a March graduate in environmental education from Mishicot, Wisconsin; and Vicki Jo Roy of Homestead, Florida, also a graduate in environmental education.
Environmental studies needs time: Albers

(Excerpted from a paper by Dr. James R. Albers, Vice Provost for Instruction and Research and professor at Huxley College.)

The history of undergraduate education in environmental studies is very short; very few programs are as much as five years old. This is too short a time to come to any final conclusions about the efficacy of these programs.

About the best we can do at the present time is to describe environmental programs now in existence and make comments, criticism and guesses about their future.

Present programs seem to fall into two general groupings: (1) those whose courses and faculty reside in traditional departments and whose major role is one of coordination, and (2) self-contained programs with their own faculty and courses and considerable autonomy with respect to the wider institution.

The first type represents the most prevalent model for environmental studies programs at present. Some examples of this type can be found at Penn State, SUNY Buffalo, Dartmouth and the University of Washington.

The success of such a program depends on the cooperation and good will of a large number of traditional departments and schools. Work done on environmental problems is not always recognized by such departments as appropriate disciplinary research and may not be credited to tenure and promotion.

From the students' viewpoint, the program often lacks cohesion and course materials are not always well integrated.

Community Service

Some examples of programs of the second type are found at The College of the Atlantic, Kresge College and Western's Huxley College of Environmental Studies. In these colleges, community service, which is an important part of most environmental studies programs, may receive as much weight as research activity for purposes of tenure and promotion. From the students' viewpoint, the single unit has the advantage of providing a sense of community.

Probably the greatest advantage of a separate college for environmental studies is curricular autonomy. The ability to explore new curricular configurations is especially important to environmental programs, where there are few traditional curricular guidelines.

As usual, there is a price one pays for this advantage. It usually takes the form of the dual charge of "watered-down courses" and "course duplication."

Occasionally, there may really be duplication, with, for example, a course in ecology taught by the biology department and in the environmental studies unit. Any such real duplication should, of course, be eliminated.

The problem arises when both units teach a course, such as ecology, with the same title but with different content—or even with similar content but a different viewpoint and emphasis.

Another disadvantage of the separate unit is that it may become isolated from other programs on the campus. A feeling of siege sets in and it becomes "us against them." This makes the environmental studies unit especially vulnerable when resource allocations are made.

There is some schizophrenia in environmental programs. There are those who want their environmental program to include a large amount of eco-action: active resistance to local polluters, attempts to influence legislation and a general identification with environmental causes.

Opposed to this is the idea of the honest information broker: an unbiased, expert source of information about the environment. This person sees his credibility destroyed by espousal of particular causes.

I don't think that professionally we can have it both ways for very long. If we are going to establish ourselves as credible, professional environmentalists, we cannot uncritically support every environmental issue that comes along.

Citizens almost never have a source of unbiased technical information to guide them. Very often they are called upon to make sophisticated decisions about anything from food additives to nuclear energy with little more than propaganda to guide them. I hope that as professionals, we can provide reliable information on environmental questions to aid citizens in their decision making.

The idea that environmentalists know how the world should be changed or what the "proper value systems" are is both pretentious and dangerous. Value systems should be examined with the same critical analysis as other concepts. I hope that we shall be able to approach environmental studies with the same sense of open inquiry that we would use in other academic areas.

Environmental studies is very young and has had growing pains. However, the problems of the environment are so critical and the need for people who can deal with them so severe that it seems to me there is no chance that such programs will disappear. In fact, my perception is that environmental programs are becoming more intellectually demanding and that we are moving toward the establishment of a new discipline—a new branch of knowledge.

This will mean new graduate schools and PhDs in environmental science and environmental studies and the whole educational apparatus that goes with them in our society. Our present programs will undoubtedly mutate, but I hope that what I think is the great strength of environmental studies—namely, the systems, or integrated, approach to problem solving—will remain.

Further, we might consider as a goal for undergraduate environmental education the development of people who are trained in the art of utilization of knowledge to meet human needs.

Kelly receives Monahan award

Janet Kelly, a freshman from Spokane, has been named recipient of the first $1,000 Patrick L. Monahan Memorial Scholarship for the coming 1975-76 academic year.

A geography major at Western, Janet has maintained a 3.47 grade point average. Further, we might consider as a goal for undergraduate environmental education the development of people who are trained in the art of utilization of knowledge to meet human needs.

A geography major at Western, Janet has maintained a 3.47 grade point average during her first year. She was among 14 students considered for the award.

She is the daughter of Mr. and Mrs. Robert E. Kelly of 1617 East 18th Avenue in Spokane and was graduated from Joel E. Ferris High School in 1974 with a 3.9 grade point average.

The scholarship fund was established this year by family and friends of Patrick L. Monahan, late son of Marilyn and Dr. Robert L. Monahan, professor of geography at Western.
Because land-use planning has not been properly utilized in the Green River Valley, south of Seattle, residents are paying in real dollars many times what the cost of preventive action would have been, according to Gilbert A. Peterson, specialist in environmental planning. Most of the cost has to do with damage caused by water seeking its own level in a locality that has a great deal of rainfall.

Peterson, assistant professor at Huxley College, has been using the Green River Valley as a prime example of improper land use for a number of years. As the valley has been developed, problems have occurred which provide textbook examples for his research.

The permeability of the soil is a major factor in determining an area’s potential for flooding and landslides, problems which require expensive solutions.

"As flat, easily buildable land is used up, more construction will take place on hillsides, increasing the probability of landslides," Peterson continued. "In the early 1970s, a newspaper account reported 30 million dollars' worth of property damage in 30 days in the Puget Sound basin due to landslides during a particularly wet spring.

"These costs could largely have been avoided if a little planning had been utilized."

Much of the soil and underlying material in the region is stratified, with varying densities of material in each layer, because of the way the soil was laid down by melting glaciers as the ice age receded. When cuts are made in hillsides for construction of foundations or streets, permeable layers of coarse material are exposed.

These layers soak up rainwater and become filled, permitting layers above to literally float off, down the hill. The result is an increase in the amount of flooding and landslides, problems which require expensive solutions.

"Adequate land is available on top of bluffs to the east and west of the valley that could have been turned to industrial use without the added expense
to the public or the loss of prime farmland.

"The valley was once classified as open space for agricultural use under a comprehensive plan for King County developed in the 1950s," Peterson went on. "This open space was gradually annexed by local communities, taking it out of county jurisdiction, and rezoned to attract industrial development. This act, coupled with speculation which raised property values, caused farmland to be reassessed at a higher value, raising property taxes and forcing many farmers out of business.

"Some of the crops thus lost to the region included perishable fruits and vegetables. The disappearance of those crops from the area has caused canneries to close and has otherwise disrupted entire market relationships."

With the loss of prime farmland to industrial and housing development, marginal land has been put into use. The increased demand for production placed upon this land required greater use of irrigation, fertilizers and pesticides, further increasing costs.

Developing lowlands subject to ponding also destroys areas vital to some forms of wildlife, particularly waterfowl who travel the Pacific flyway. Ponding and the residue from agriculture once provided water and food for these birds, but their habitat is rapidly disappearing.

Annual flooding of the Green River did not detract from the value of acreage as farmland. As a matter of fact, periodic slow-rise flooding deposits beneficial mineral and organic material on farmland in a natural process that enhances its productivity.

This same slow-rise flooding or ponding can be disastrous to a housing development or highway, however, and can result in years of expensive engineering, maintenance and repairs.

"In another area north of Seattle, owners who purchased lots for $3,000 have had to have $6,000 worth of storm drains installed and even then has not completely solved the problems," Peterson said.

"We have the knowledge and the technology to solve our problems," Peterson said, "but we don't have the laws and regulations that will permit them to be utilized. We need stronger state laws that would require more land-use planning and federal regulations that would require more land-use planning in order for projects to qualify for grant-in-aid funds."

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**Goltz address waxes historical**

The Olympian Address was delivered to the graduating freshman class of the Washington State Legislature May 20, 1975, by Sen. Barney Goltz, and is reproduced here from the back of an envelope, on which it was originally written.

Four score and 48 days ago our constituents sent forth upon this capital a new Legislature, conceived in November and dedicated to the proposition that all Senate men (and presumably all Senate women) are created more or less equal—but that the Democratic Majority is more equal than the Republican Minority.

Now we are engaged in a great civil exercise, testing whether this Legislature, or any subsequent Legislature, can so long endure. We are met at a great graduation exercise of this Legislature. We have come to graduate the freshman portion of that field to that permanent resting place for those who here have reached seniority that the Legislature might live on, and on and on. It is altogether fitting and proper that we should do this.

But in a larger sense we cannot graduate, we cannot desecrate, we cannot make holy this ground. The brave Senators, living and dead, who struggled here, have given it honor and have fouled it up far above our poor power to add or detract very much.

The world will little note, nor long remember, what we say here, but, hopefully, it will soon forget what we did here.

It is for us, the freshmen, rather to be dedicated here to the unfinished work, which they who came here before us have thus far so ignobly advanced. It is rather for us to be here dedicated to the task remaining before us, that from our honored leaders we take increased devotion to that cause for which they are not giving their full measure of devotion; that we here highly resolve that the lobbyists shall not have pried their wares in vain; that this Senate under the Assistant to Mardesich shall have a new girth and freedom, and that this Legislature of the people, by the people and to the people shall soon perish from Olympia.
Organisms act as environmental sentinels

Coal miners at one time carried live, caged canaries with them on their trips beneath the surface of the earth to warn them of the presence of dangerous gases or the absence of oxygen. Canaries are more susceptible to carbon monoxide than are humans and miners knew that as long as their canary was healthy, the air in the mine was suitable for breathing.

According to Dr. James R. Newman, assistant professor at Huxley College, organisms, such as the miners' canary, which can be observed in order to determine the status of environmental conditions or changes in certain of their characteristics, indicate reactions to changes in the world around them.

Certain kinds of insects, for example, are more abundant when excessive amounts of nitrogen dioxide, fluorides, sulphur dioxide or photochemical oxidants are present in the air.

"Recent investigations indicate that many animals are sensitive to air pollution," Dr. Newman stated. "Suitable biological indicators of environmental quality can and should be developed."

Seals housed in zoos near freeways seem extremely susceptible to lead poisoning from automobile emissions. Certain varieties of birds are vulnerable to sulphurous emissions from pulp mills.

Deer, rabbits and bees show varying degrees of sensitivity to fluoride emissions from certain industrial operations.

The use of plants and animals as biological indicators in water pollution studies is well-established and many species of plants are good indicators of air pollution. The use of animals as biological indicators of air pollution, however, is not as well-developed as it could be.

The responses of a number of animal groups to changes in concentrations of specific air pollutants have been studied in order to categorize those responses and to determine which animals respond best to each pollutant. Most animals found to be potential biological indicators are fairly common and are easily sampled. Some are domestic, some are found in zoos and others are game animals.

As a result of these studies, five types of biological indicators have been proposed, classified according to their responses to pollution. The first of these, known as sentinels, act as early-warning devices under certain adverse conditions. The coal miners' canaries are typical of this category.

Bioassay monitors detect or monitor the presence or concentration of a certain pollutant; detectors, a third type, show a characteristic response to a pollutant or some environmental change. A fourth category, known as thrivers, are those whose presence indicates the occurrence of a particular pollutant, while accumulators are those organisms that collect and accumulate a pollutant in large quantities.

Organisms may be one or more of these biological indicator types.

Most pollutants affect the respiratory systems, but some affect the gastro-intestinal system and the central nervous system. Some cause cancer; hydrogen sulhide affects blood chemistry.

Horses and cattle are bioassay monitors for arsenic, fluorides, lead, selenium and other pollutants, while many birds can serve as detectors for carbon monoxide, nitrogen dioxide, photochemical oxidants, selenium and sulphur dioxide. Coniferous tree insects are indicators of fluorides, nitrogen dioxide, photochemical oxidants and sulphur dioxide, and several varieties of birds and mammals are accumulators of a wide variety of pollutants.

The list is not complete and, as such, is an indication of what is known about the effects of air pollutants on animals. Its general nature reflects the lack of specific studies on animals; the predominance of mammals also reflects emphasis of past and present research.

Most laboratory studies of air pollutants have been conducted at exceedingly high concentrations. Proper understanding of most of these pollutants requires chronic exposures to a variety of animals.

Several pollutants, including arsenic, fluorides, lead, nitrogen dioxide, photochemical oxidants and sulphur dioxide are well-enough understood that research into development of biological indicators for these pollutants would be fruitful. Concerning other pollutants, such as chromium, phosphorus and vanadium, more information is needed before biological monitoring systems could be set up.

Bellingham 'Goals' program nearing final segment

Phase II of the "Goals for Bellingham" program is nearing completion and plans for the third phase review process are scheduled to begin in early June, according to program director Dr. Skip Everitt.

Dr. Everitt, assistant professor at Huxley College, commended the nearly 750 Bellingham residents who have actively participated in the program through its first two stages.

Goals for Bellingham is a program designed to involve maximum citizen input in planning Bellingham's future for the next 25 years. It was inspired by Governor Evans' Alternatives for Washington program.

The first two phases of the program were funded by a $12,000 higher education grant to WWSC and the City of Bellingham for a cooperative effort in planning. The Bellingham Planning and Development Commission, together with the city's Civic Partnership Office have sponsored the program as part of a revision of the city's comprehensive plan.

An additional grant is expected to provide funding for phase three which will carry through to September when representatives from neighborhood, policy and task-force groups will meet to put the end product in its final form.

"Thus far, more than 60 neighborhood meetings, conducted between November and January, have produced a 159-page document containing goals of every imaginable concern," Dr. Everitt said.

"The hardest thing for people to do in this process so far," Dr. Everitt explained, "has been to think ahead to the year 2000 and not base their suggestions on what is happening around them today.

"We've pulled a lot of people in that have never been involved in this type of activity before," he continued. "That's the reward. The project has demon-


(Continued on page 7, column 3)
The annual WWSC basketball banquet, usually held within a month after the hoop season ends, was postponed this year until Coach Chuck Randall, who suffered a heart attack with four games remaining in the campaign, could attend.

Thus it was not until June 6 in the Regency room at Bellingham's Leopold Inn that the event finally took place. It proved to be a wait well worthwhile.

In speaking to the 125 people in attendance, after receiving a standing ovation, Randall said, “Through basketball Christianity has come to have real meaning to me. During my recovery I got many letters and cards, which meant very much to me. One that I'll never forget came from Mike Dahl [former Viking captain and graduate assistant coach]. It didn't start out Dear Coach or Coach Randall, but read: Randall—God loves you, And so do I.

“I have that hanging in my bedroom.” That was the feeling that pervaded the evening, which was made extra special by the presence of twelve team captains and nine graduating assistant coaches from the past 13 years Randall has coached at Western.


Simon Fraser University basketball coach John Kootnekoff was the guest speaker. His message was taken from an open letter he had written to Randall upon learning of his attack.

Awards were given to members of the 1974-75 team, which Randall called “one of the greatest ball clubs I've ever coached.” It had finished with a 17-9 record.

The Sportsmanship trophy went to Jim Hotvet (Bremerton/Central Kitsap), the Inspirational award to Keith Lowry (Bellingham/Sehome) and the Captain's award was shared by Bissell (Bellevue/Newport) and Price (Lynden).

Each of the six graduating seniors received framed copies of the Athlete’s Prayer, which the Viking varsity recites before every game. They went to Bissell, Hotvet, Lowry, Craig Nicholes (Seattle/Roosevelt), Bob Nicol (Eastsound/Orcas) and Price.

The team presented gifts to Randall, who also was given a “Memory Ball” signed by all the players present.

Appropriately the occasion ended with everyone saying the Athlete’s Prayer.

Master of Ceremonies was Vice President of Student Affairs C. W. “Bill” McDonald, and the invocation was given by Mrs. Mary Long, wife of Director of Athletics Boyd Long.

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Ancient life symbols used in ESC building

The last of 36 ceramic tiles has been placed in the walls of the Environmental Studies Center on campus, completing a year-long art project funded through a grant from the Washington State Arts Commission.

Pottery Northwest, a Seattle-based cooperative business, produced a series of one-foot-square plaques which appear at various locations throughout the interior and exterior of the six-story building.

Ibsen Nelsen of the architectural firm of Ibsen Nelsen and Associates, designers of the building, recently explained the meaning of the tile designs and the reasons why the project has taken so long to complete.

"The idea was to use ancient life symbols which we thought were very appropriate to an environmental studies center," Nelsen said. "The tiles depict ancient Egyptian scarabs, or beetle designs, and derivations of centuries-old Japanese art."

Recesses cut in the walls of the building for placement of the finished tiles measured 12 inches by 12 inches. To allow for placement, the tiles had to measure 11 and seven-eighths inches on each side, Nelsen said.

"Each tile had to go through three separate firings," Nelsen explained, adding that "because of their size, production was complicated at times." He said he believes the tiles are unique due to their size and the complex firing process each must go through.

The first step in the process is to give each tile what is known as a bisque firing which hardens the clay. A second firing produces the glazed effect on certain portions of each tile.

In a third and final firing, the tiles are heated red-hot and then removed from the kiln and plunged into a covered container with dried leaves and other fast-burning materials. As oxygen is rapidly burned up in the container, the smoke and heat combine to give the tiles a crazed or cracked appearance. The process also leaves the clay body black where the tiles are not glazed.

This firing process, although complex, is by no means new. Known as Raku, it was first used by Zen monks in Japan during the 17th century, Nelsen explained.

He said the tiles have a tendency to explode while being fired and that several of the completed plaques had been dropped and had to be replaced.

The various designs have captured the interest of many persons on the campus, but, Nelsen said, "few people understand their meaning." To remedy this situation, plans are being developed to provide a key to the designs somewhere within the building. The key, he said, would show each design and a short description of its historical significance.