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UNIVERSITY OF COLORADO
BOULDER, COLORADO

PRESIDENT'S OFFICE
June 17, 1964

Members of the Faculty in Biology (Boulder)

Dear Colleagues:

I attach for your consideration and reaction suggestions received from some of your colleagues for strengthening biology in the University.

I believe you are receiving also other suggestions which might be incorporated in a proposal to NSF for an institutional grant.

I feel it is essential for each member of the Department to have the opportunity to review any suggested changes for the reorganization of biology.

Sincerely yours,

J. R. Smiley
President

Subject: Organization of the Life Sciences

In late March 1964 President Smiley very sympathetically discussed with us some of the existing problems in the Department of Biology. At that time we were encouraged to draft suggestions for strengthening biology at the University of Colorado. Since then we have met informally several times to discuss our ideas. Perhaps it would be of interest and assistance to the Administration and/or their special committees to receive in some detail the outcome of our deliberations to consider a new organization for biological sciences.

We note from Dr. Pennak's memorandum to the Department of May 29 that the Department was told of a possible "splitting". Hopefully this concept of splitting is an administrative one only. Our suggested plan is for reunion of biological disciplines so they can work together to contribute to an outstanding reputation in the Life Sciences for the University of Colorado. Scientists such as Albersheim (Chemistry), Ginsburg (Psychology), Prescott (Anatomy), Franklin (Pathology) and Weber (Museum) can and should be identified with and contribute to a major program in Life Sciences. This unity concept ought to be adopted if Colorado is to strive for recognition given to biology in places like Berkeley, Cal Tech, Stanford, Purdue, Illinois, Johns Hopkins, and comparable centers of excellence. Students at the University will have a vastly stronger program in Life Sciences under a unified faculty.

Need for development of interdisciplinary biology

Our suggestions for development of biology on the campus perhaps should be prefaced by stating that we are cognizant of, and in agreement with, the report of the Biology Department Survey Team (Parkes, Prosser and Steere) in May 1961. We are in agreement with the statements concerning the broad potentialities of biology as outlined by Dr. Puck in a letter to President Smiley of January 30, 1964. Biology is undergoing a major revolution that will have repercussions in every field of Science and biology's impact on society will have even more profound effects than the recent revolution in physics. Our thinking is further guided by the President's Science Advisory Committee's report (Seaborg report, 1960) in which is stated, "the security and the general welfare of the American people urgently require continued and rapidly sustained growth in the strength of American scientists". We propose that biology at the University of Colorado attempt to implement a

recommendation of the Seaborg Committee that we should be "energetic and imaginative in seeking effective ways of identifying and supporting new fields of basic research and supporting the training of scientists in such fields. Many research opportunities are emerging in new fields that are essentially interdisciplinary. These require special efforts by universities to encourage new programs". A similar point of view has recently been expressed by President Smiley himself when for the Alumni Quarterly he pointed out that universities need to find ways to cross departmental lines. We realize that the resistance of democratic units to undergo self appraisal and change is great. To quote from an assistant director at the National Science Foundation in his annual report two years ago,

> "the Foundation cannot --- find a way to make backward people look ahead nor to make brash people look around. At the same time it should not let either extreme define the problem nor specify the solution. Fortunately there are a great many people who are neither brash nor backward. There are many people in the universities who see the problems and want to do something about them, and in some instances very good things are happening. Still, one is depressed by the lack of innovation and a failure to capitalize on opportunities in many of our universities. The needs at our universities are only in part financial. They are often blocked by archaic organization of classical departments out of step with the world today. Hence they fail to develop the newer and more significant lines of work. The stumbling block is frequently the budget. The vested interests of the established departments work against the formation of new groups that would cut across existing departmental lines and thus create new budgetary competitors."

In the same report the assistant director of the National Science Foundation continues by stating that a university department

> "that falls behind may be multiplying backwardness particularly if it is a once outstanding department. What can be more deadly than training bright young men to less than full capabilities, of staffing other departments with young men who start life with old-fashioned ideas? One of the urgent needs of our times is to help the best departments of biology in the country to maintain themselves and to grow and to help many of the good ones that aspire to grow to develop into the first rank."

Life Sciences - a key interdisciplinary role

From our point of view, albeit a biased one, the Life Sciences stand at the hub of a university's science program. This key interdisciplinary position for biology can be indicated by the fact that transfer of information and knowhow between the physical and social sciences would seem to be no stronger than the biological bridge that connects them. Life Sciences should consist of active, cooperating and coordinating programs that interdigitate fields such as psychology, anthropology, mathematics, sociology, historical geology, biology, pharmacology, physics and chemistry, not to exclude such multidisciplinary units as the Museum, the Institute of Arctic and Alpine Research, and the Institute of Behavioral Sciences.

We must remember, however, that Life Sciences can move no faster than the progress being made by physics and chemistry. Elementary particles are building blocks in nature and as such cannot be ignored forever by the biologist. In the chemistry department we see specialists working on organic molecules such as large enzyme units. These molecules are derived from biological material and the ultimate significance of understanding them is going to be related to their biological activities. Thus the trend to integrate both graduate and undergraduate education across existing departmental lines is both needed at today's university and is being put into practice on campuses (Yale, Chicago) where sciences are strong. Our suggestions therefore are intended to develop the Life Sciences and to exert special effort to encourage emerging new fields in biology, such as biophysics and molecular biology, that are interdisciplinary in nature, as well as to upgrade the more classical disciplines in biology.

Perhaps our plan for broad coverage of new areas in biology on this campus should be included under an even broader plan to integrate all of the natural sciences including physics, geology and chemistry. However this is beyond the scope of our proposal. (Our program, however, could very well fall into a larger scheme of things.)

THE PROPOSAL - (See Supplement)

Any proposal should be based upon practical points of view. We have attempted to provide a framework for the best utilization of faculty and fields of interest that already exist at the University. Secondly, we have attempted to propose a well rounded program for undergraduates so that they may be accepted into top ranking graduate schools in the country. And thirdly, we have attempted to insure flexibility for growth into emerging areas of science that perhaps cannot be seen or formulated at this writing. Upon this scaffolding we have designated seven areas of biology that in today's universities should have both undergraduate and graduate training programs each of which should have intercommunication (including joint appointments) with the classical departments in the University.

The seven areas of research and graduate and undergraduate training are presented first because they constitute the major innovation and provide the new and dynamic organization of biology that all of us seek: (1) Environmental and Regulatory Biology, (2) Systematic and Evolutionary Biology, (3) Human Biology and Paleontology, (4) Animal Behavior, (5) Genetics and Development, (6) Molecular and Metabolic Biology, (7) Bioenergetics and Bioionics. The seven "areas" of biology are suggested not as independent departments but as teaching and research programs in Life Sciences. Their diversities and interdisciplinary nature are such that both graduate and undergraduate curricula need to be devised so that Colorado can train majors for and attract graduates from universities of stature comparable to our own (Biology currently exchanges students with less than our potential in the academic world.).

New faculty will be essential. Perhaps 4 of the 7 areas (1,2,5, and 6) can become outstanding strengths by adding faculty having interests primarily in cellular and molecular biology. Suggested cooperating departments and potential candidates are given in an appended supplement.

In our concern for developing both quantity and quality of faculty for graduate programs in the Life Sciences we have not neglected consideration of undergraduate programs. A number of alternatives have been discussed, two of which are documented below by way of illustration.

Undergraduate Plan I

Assuming that a reorganization of the General Education course in Life Sciences is appropriately done, perhaps this could serve as the introductory course for students majoring in the Life Sciences. To the General Education Course could be added four semesters of what one might call a "core program". Responsibility for these four semesters could be distributed among the seven special programs in Life Sciences. One semester could be a course in structural biology that emphasizes the functional aspects of morphology in both plants and animals including vertebrates and invertebrates. Such a course would attempt to cover the key biological principles that currently exist in traditional courses such as cytology, histology, comparative anatomy and descriptive embryology. A succeeding semester could be one of functional biology. Here the student would be exposed to enzyme systems, regulation of biochemical events, cell and organ physiology as illustrated by both plant and animal materials. The next semester of the core program could cover environmental and systematic biology. This would include principles of animal and plant relationships with emphasis on the evolutionary approach. It would include natural history biology emphasizing relationships of animals and plants to the community and to the environment. Energy flow of dynamic interrelationships should be stressed. The final semester of the core curriculum could survey modern frontiers in biology. Substantively this course should have the greatest possible amount of flexibility. For example, such a program today would include modern concepts of and approaches to development and genetics. Biochemistry and biophysics of biological phenomena can receive increasing emphasis as the state of knowledge progresses. This is intended to be an integrated course to enable the student to dovetail and to deepen his experiences from his entire undergraduate curriculum. An integrated program at the upper division level is essential because the introductory phases of biological training preceded exposure to advanced chemistry, physics and mathematics all of which should now be brought to bear upon the student's biological background. At the end of the core curriculum, consisting of approximately 24 semester hours, the student is able then to select 1 of the 6 or 7 specialized areas in Life Sciences for completing a major. An undergraduate program with a common core curriculum offers a broad training in essential principles and concepts and at the same time incorporates flexibilities so that the student can pursue a special area of interest during his junior and senior years.

Undergraduate Plan II

If it appears that the General Education Course for the Life Sciences should become designed more for nonscience majors than for a dual purpose course both for science and nonscience students, one can visualize a four-semester core curriculum for which responsibilities also could be shared by the various subdivisions of

of Life Sciences. The four parts of the core program could have a variety of sequences; however, for sake of illustration the first course could be called molecular and subcellular biology. Responsibility for this course could rest with the units called molecular and metabolic biology and bioenergetics and bioionics. The next higher level of biological organization could be a course called cellular biology and responsibility could rest with the unit called genetics and developmental biology. The third level course could be called organismal biology and this could be engineered by the units called systematic and evolutionary biology and animal behavior. The fourth and last part of the core curriculum could be called population and community biology and this could be in the charge of the unit called environmental and regulatory biology. Toward the end of the core curriculum students should be prepared to select the biological subdivision in which he wishes to major. During the junior and senior years students could participate in the more specialized programs offered by one of the seven areas of Life Sciences.

The combination of the core curriculum for the undergraduate and the interdisciplinary approach to Life Sciences for the graduate student would provide opportunity for the student at all levels. This integrated and yet multidisciplinary approach to Life Sciences is not a unique one and has been seen as a trend across the country. For example, rather recently at the University of Illinois a common curriculum was established for the departments of physiology, microbiology, zoology and botany. Having such a program, along with the appropriate faculty, the University of Colorado should be in a position to prepare the majors to enter almost any graduate school in the country. Furthermore we should be in a better position to attract students who have majored in the larger universities.

DIVISION OF LIFE SCIENCES

(Possible primary recruits)

P. Handler, Duke University
NSF Board, PSAC

(Cooperating departments and joint faculty are more illustrative than suggestive)

Environmental and Regulatory Biology

E. Odum, Univ. Georgia

Botany - Bonde, Gates, Marr, Smith

Zoology - Alexander, Norris, Pennak, Williams, Winston

Institute of Arctic and Alpine Research - Marr, Gates

- _____, _____

Systematic and Evolutionary Biology

R. Rollins, Harvard University
E. Mayr, Harvard University
H. Lewis, UCLA

Botany - Shushan, Weber, Wiens

Zoology - Bushnell, Gregg, Maslin, Rodeck

Museum - Rodeck, Maslin, Weber

- _____, _____

Human Biology and Paleontology

S. Garn, Antioch College
W. Straus, Johns Hopkins

Anthropology - Kelso

Geology - Chronic, Eicher

Museum - Wheat, Robinson

Animal Behavior

F. Beach, Berkeley

Psychology - Altmann, Ginsburg, McClearn

Genetics and Development

E. Tatum, Rockefeller
C. Yanofsky, Stanford
C. Markert, Johns Hopkins

- Daniel, Helwig, Runner, Schultz, Smith

Anatomy - Prescott

Biophysics - Morse

Molecular and Metabolic Biology

P. Siekevitz, Rockefeller
S. Spiegelman, Illinois
N. Kaplan, Brandeis

Chemistry - Albersheim, Downing, Tolbert

Pharmacy - Heim, Shulls

Microbiology - Kalkar, Talmadge

Biophysics - Lehrman

Biochemistry - Abrams

Pathology - Franklin

- _____, _____, _____

Bioenergetics and Bioionics

J. Platt, Chicago
C. Levinthal, MIT
J. Gross, Boston

Electrical Engineering - Barnes

Mechanical Engineering - Kreith

Physics - Phillipson

Biophysics - Puck

Institute of Arctic and Alpine Research - Gates

- _____, _____

The opportunity for a sudden step forward such as may be provided by the NSF Science Development Program offers an unusual opportunity for recruiting en masse and in depth -- a feat well nigh impossible when candidates must be selected one at a time. Opportunistically recruiting can be self catalyzing if 5 to 7 top scientists (e.g. Handler (Duke), Siekevitz (Rockefeller), Tatum (Rockefeller), Beach (Berkeley) and Odum (Georgia)) are interviewed as a team and each is given the opportunity to do primary recruiting for 2 additional junior colleagues.

UNIVERSITY OF COLORADO

Biology Department

August 6, 1964

President Joseph R. Smiley
Macky Auditorium
Campus

Dear President Smiley:

This is being written in an attempt to draw to your attention what the undersigned individuals consider to be inaccuracies, misconceptions, serious omissions, and outright falsities included in the section on Biological Sciences of the Report of the NSF Science Development Program Committee.

That section of the Report represents the attitudes and ideas of one member of the Faculty of the Department of Biology, Professor Runner, plus others who are not members of this Department. Had the Department been given any voice in the selection of a person who would represent the Department in the preparation of the Report, we are confident that Professor Runner would not have been selected. Rather, we are sure that the Department would have nominated Professor Pennak, our present Chairman and a man of high national and international reputation. During the year that Professor Runner was Chairman of this Department, and in the year since then, he made no specific proposals for modification or reorganization of the Department or its curricula; he sometimes spoke in vague generalities, but never put anything in writing. It now seems quite clear to us that he has been working outside the Department, without consulting his colleagues in the Department concerning its future.

Be that as it may, when we were notified that the Committee had been appointed, and that Professor Runner was to be the representative of this Department on the Committee, the Faculty of the Department voted without dissent to place the responsibility for preparation of the departmental proposal in the hands of the Advisory Committee and Chairman of the Department. One of the undersigned moved that Professor Runner be invited to join the Advisory Committee in its deliberations; this motion also passed without dissent. In the brief time (nine days — and that near the end of the Spring Semester when all departmental personnel were extremely busy) available, the Advisory Committee and Chairman met several times, but Professor Runner indicated that he was too busy to meet with the group until the last meeting. During that last meeting he made no suggestions for improvement or extensive revision of the proposal, nor did he when the proposal was submitted to the departmental Faculty as a whole. Yet is is quite clear that the Biological Sciences section of the Report bears little resemblance to that submitted by the Department.

This communication consists of two parts. In the first part are general comments of that section of the Report entitled 4. Biological Sciences, while in the second part is a paragraph by paragraph analysis of that section.

I. General Criticisms

1. This Department voted without dissent that the two fields of the Department's activities which are to be given strong emphasis for the future are environmental biology and developmental biology. It was also agreed, without dissent, that in these two fields, the experimental approach is to be emphasized.

2. The Department recognizes that cell biology is crucial to the progress of all aspects of biology, but believes that this Department should develop cell biology in relationship to the two fields which it espouses as its specialties, rather than for its own sake. There are so many places, including our own School of Medicine, where work in cell biology is being carried out with great effectiveness that we feel we should not attempt to achieve an outstanding reputation in cell biology as such. We realize fully that we have numerous responsibilities, not the least of which are undergraduate and graduate education in the broad aspects of biology, including solid foundations in cell biology. We must diversify and increase our strengths in several areas of biology, including cell biology. But we cannot be all things to all people, and we believe that our greatest opportunity for the future is in the broad fields which we have designated above; in those we hope to achieve excellence. We also note that it is obvious neither Professor Runner nor other members of the Committee have adequate understanding of the extent to which cellular biology, molecular biology, biochemistry, and biophysics are integral parts of our course offerings and graduate education.

3. The suggestions for increased staffing of the Biological Sciences are grossly disproportionate, with such suggestions based either on sheer ignorance or willful misrepresentation of the current staffing of the Department, as well unwillingness to accept the two fields which the Department has espoused.

4. It is obvious that certain members of the Faculty of the School of Medicine have had a major share in the development of this section of the proposal. While this Department has had cordial relationships with several individuals in the basic science departments of the School of Medicine over quite a number of years, and those individuals have come to understand our problems, our obligations, and our hopes for the future, it seems obvious that those individuals were not the ones who contributed to this section of the Report. Instead, it seems likely that the Report voices the opinions of persons who have never become involved with our Department, nor consulted nor conferred with us. No doubt Professor Runner has sought their counsel, but they have not consulted with the rest of us. We resent having persons who understand neither the problems and obligations of the Department, nor the breadth of biology as a science being given the major voice in dicatation of the future of the Department of Biology.

5. The tone of the whole Report stresses the current interests (one might almost say "fads") of biology, and shows no appreciable respect for either the strengths of the more traditional kinds of biology or the probably exciting and adventurous developments of the future. We

know that there have been fads in the past, which are the traditions of the present, and that the fads of today will become the traditions of the future. We full well appreciate the values of fads, but we do not wish them to supplant the good from the past nor blind us to the future.

II. Detailed Analysis and Criticism

Note: the numbers used for sections correspond to the sequence of paragraphs of Section 4. Biological Sciences of the report of the Committee.

1. (p. 21)

   a. The tone of this paragraph "damns with faint praise" and shows no real understanding or appreciation of environmental biology, especially in its breadth and promise, and provides no basic strengthening for this field of departmental activities. There is no mention of the NDEA program in physiological ecology in this Department, now beginning its fourth year, which has been providing marked increase in strength of the graduate program of the Department over the past three years. During the next academic year five fellows in this program will receive Ph. D. degrees; each will come out of this Department as a well-educated, not merely well-trained biologist, of which any Department could be proud. In addition, the NDEA program has provided funds which have purchased much-needed research equipment, which will be used for years, which have greatly strengthened the library, especially in periodicals, have added to the general supplies and expense budget of the Department, and have provided honoraria for visiting lecturers giving graduate courses in the Department.

   This NDEA program has been very progressive, yet it has been carried out by members of this Faculty whom Dr. Runner would suggest as being out of contact with modern biology. The majority of the members of this Faculty are not content with mere continuation of emphasis on environmental and systematic biology; progress is wanted, and such progress will come in large measure from laboratory-conducted, experimental analyses of problems discovered in the course of field studies.

   b. The proposal for a Division of Life Sciences may have some merit, if there be established other Divisions in parallel. However, the establishment of such Divisions in the University might lead to serious administrative complexities.

2. (pp. 21-22)

   a. Why is there no mention of the curricula vitae of all individuals who might be associated with the proposal? Why not those of the Faculty of this Department? Why not those of the Department of Physiology of the School of Medicine?

   b. If the Department of Physics and Astrophysics is "actively considering a Research Institute for Biophysics" why has there been

no consultation with the personnel of the Department of Biology, especially its Chairman? Would not such an institute infringe on the prerogatives of the Department of Biophysics of the School of Medicine, already recognized as an outstanding research department?

3. (p. 22)

a. There has been a marked increase in the educational programs of the Department of Biology, both graduate and undergaduate. The strengthening of the doctoral program has been especially noteworthy, aided in no small measure by the NDEA program which the Report chooses to ignore completely. Not only has there been a pronounced increase in numbers of students at all levels, but the quality of students entering the Departmental programs has increased, and the students who finish degrees in this Department are of higher achievement than ever before. In addition to NDEA Fellows, the Department has regularly had an appreciable number of NSF Fellows and some NIH fellows; our first NASA Fellow will complete his doctorate this August.

One factor in the increased quality of our majors has been the fact that larger numbers seek admission to the Department, so that we can be more selective. Secondly, our advising of undergraduates and graduates has stressed the need for students electing courses in other sciences, especially chemistry, physics, and mathematics.

b. While there has been little alteration in the naming of courses in the Department, the course content at all levels has been strikingly altered. There has been continual assimilation of of the facts and ideas of modern biology into the traditionally designated course structure. In the animal and cellular physiology courses at all levels we find modern concepts of thermodynamic and kinetic relationships, fine-structural and molecular basis of energy transfer and utilization, feedback circuitry via neural and endocrine mechanisms, and other significant phenomena. Plant physiology is throughly modern in its approach, attacking problems of plant life at all levels, from quantal and molecular aspects of photosynthesis to photoperiodic control of flowering and adaptations of plants to variations in environments. Genetics, both undergraduate and graduate, is taught on a broad plane of fundamentals, from the molecular aspects of information encoding via DNA molecules to mathematical aspects of population genetics. Ecology courses are taught in terms of modern, highly analytical, approaches, including open system thermodynamics as applied to energy flow in the biosphere. We only await the provision of adequate laboratory facilities on this campus to strengthen these greatly. Embryology courses are being markedly altered in modern direction; for this full credit is due to Professors Runnor and Daniel. While it is inevitable that taxonomic course be more traditional than others, current knowledge of ecology, biogeography, population dynamics and genetics, and cytotaxonomy are significant

aspects of courses in systematic and evolutionary biology. Even in the freshman course in general biology, both laboratory and lecture teaching has been highly modern in approach, with heavy emphasis on cellular, ecological, and genetic aspects. It has been traditional in this Department for various senior members of the Faculty to participate in freshman teaching, and this continues.

One of the greatest strengths of this Department has been the dedication of its Faculty to teaching. All members of the Faculty have sought earnestly to provide breadth in their presentation of the facts and ideas of biology. With the present revolution in biological knowledge, this has been for several of our Faculty a difficult task, but they have met the challenge with marked success. This Department is not stagnant; this Department wants to see growth in strength and diversification of the graduate and undergraduate programs. At the same time, we insist that there are valuable contributions from the past, from the more traditional aspects of biology, and that such valuable contributions must not be dumped into the trash heap.

b. Only by stretching definitions beyond reason is it possible to say that "80% of the faculty specializes in environmental and systematic biology." The following list of teaching and research activities of the faculty of this Department describes more exactly what we mean:

Name	Teaching (primary duty)	Research
Alexander	ornithology, ecology, research methods	ecology in relation to systematics
Bonde	plant physiology	plant hormones, photo- and thermoperiodism
Daniel	vertebrate embryology tissue culture	experimental embryology
Gregg	field zoology, entomology	taxonomy & distribution of ants
Helwig	general biology, genetics	cytogenetics of grasshoppers
Marr	plant ecology	altitudinal aspects of plant ecology
Maslin	comparative anatomy, herpetology, evolution	herpetology, parthenogenesis in lizards
Morris	vertebrate & general physiology, endocrinology, history of biology	physiology of local rodents, neotony in salamanders
Pennak	invertebrate zoology, stream biology, limnology	ecology of lakes and streams

Name	Teaching (primary duty)	Research
Runner	Experimental embryology	developmental genetics
Williams	general biology, animal population dynamics	ecology of local rodents
Winston	human anatomy & physiology comparative animal physiology, microhabitat ecology	water balance in arthropods, arthropod receptors
*Bushnell	invertebrate zoology, parasitology	reproduction & development in bryozoa
*Löve	field botany, plant taxonomy	cytotaxonomy in relation to distribution of plants
*Smith	general biology, algology	developmental anatomy of bryophyta

* indicates new faculty for fall, 1964

The expression primary duty in reference to teaching indicates teaching concentration; most members of the faculty are assigned to additional teaching in journal club and general biology discussion sections.

The heaviest concentrations of teaching duties for the faculty are in general biology, comparative anatomy, genetics, vertebrate physiology, vertebrate physiology, human physiology, field zoology, and animal ecology. Only the last two can be considered either systematic or environmental biology.

5. (p. 23)

The Department of Biology does not want mere continuation of support for environmental biology; the Department wants effective strengthening of this field, especially in terms of experimental and rigorously analytical approaches, including cellular and molecular specializations for adaptation, rigorous analyses of of energy and matter transfers and utilizations, and genetic and developmental specializations for maintenance and reproduction of species in nature. We believe that herein lies great promise for the future. We have a tremendous geographical advantage, which we wish to exploit, plus a tradition of strength.

6. (p. 23)

a. We have no doubt that there is need for interdepartmental cooperation in terms of facilities, curricula, etc. This Department has had a long history of cooperation with other Departments — far more, indeed, than some of those who presently criticize us. Far more than other science departments on this campus we insist on our students enrolling in courses outside the Department. For example, the biochemistry courses in the Department of Chemistry

have no prerequisite in biology, while our general (= cellular) physiology course has as prerequisites 2 years of chemistry and year of physics, with stated recommendation that students have had physical chemistry plus mathematics through introductory calculus. Over the years, appreciable numbers of our graduate students have enrolled in courses in the Medical School, and several have done thesis research under the direction of faculty in the School of Medicine. We enthusiastically joined with the Department of Psychology in recommending the appointment of Dr. Margaret Altmann to the Faculty of the University, and have designated her courses as well as two others in the Department of Psychology with zoology numbers, so that they may count toward major requirements. In the past we have frequently designated courses in the Department of Chemistry and Department of Anatomy as being appropriate to satisfy requirements for advanced degrees in this Department. A few years ago this Department initiated a proposal to develop an interdepartmental curriculum at the undergraduate level to prepare students for graduate studies in biophysics and biochemistry, but the other departments were not interested at that time.

b. A Division of Life Sciences or Biological Sciences might be a useful administrative device, but might also be an administrative handicap. All of the Departments involved with such a division would be associated with other divisions, and this might make for faculty assignment and budgetary difficulties. An alternative might be a Council on Life Sciences, with advisory and coordinating functions, rather than administrative. But neither a Division nor a Council can be successful if Departments or individuals within Departments are continuously seeking to build their own little empires, without consultation and coordination of efforts.

c. It seems clear to us that neither Professor Runner nor those persons from the Medical School who contributed to this section of the Report have much respect for the majority of Faculty of the Department of Biology, or they would have consulted us before making such radical changes in the proposal from this Department. We feel certain that none of these people have much knowledge of our history, problems, hopes for the future, or, indeed, the very nature of biology in its full extension. We can see how they can be ignorant of such, in terms of the kind of experience and education in their backgrounds, but we can neither condone nor forgive actions in which a little group of relatively narrowly trained and narrow-visioned individuals pontifically seek to impose their views on this Department, without even the courtesy of conferring with the Department. This Department has had the experience of tens of thousands of student contact hours of teaching, plus a far greater output of both graduate and undergraduate degrees than they have, and yet the Report simply throws this to one side. We respect the positive contributions of Dr. Runner and those persons in the School of Medicine who have been critical of us, but we do not respect their unwillingness to look understandingly at this Department.

7. (p. 24)

This Department has officially recognized the strengthening of developmental biology, designating this as one of the fields which should be emphasized. We also designated the strengthening of cell biology, because it is basic to all other aspects of biology. Although the Department did not consider the problem of psychobiology, we are sure that the Department would not oppose its development; rather, on the basis of past history, we predict that the Department would strongly support such a move. But we would like to see that such a program be developed on a truly cooperative relationship between the Departments involved. For example, it is a rare event indeed these days when a major in psychology enrolls in a course in vertebrate physiology, though this may be considered fundamental to some aspects of psychology.

8. (p. 24)
-9.

It is obvious that the proposed expansion is heavily oriented toward expansion and excellence in research. We have no quarrel with such an emphasis; rather we strongly support the idea. But we do object to the proportions to which the various fields are to be expanded. We feel there is at least overlap between the authors of the memorandum from your office, dated June 17, 1964, and the Biological Sciences section of the Report, so that our opinions are colored by such an assumption. We assume that the persons who might be selected to fill positions in the expansion program would be of the type indicated in that memorandum. If we can judge by previous experience, including the contribution of Professor Rumner to the teaching activities of this Department, such persons would do very little to alleviate our present problems. If there is to be an increase in the morale of this Department, and if there is to be a modicum of justice for the present members of the faculty of the Department, something must be done to relieve the burdensome teaching loads and to allow strengthening of the undergraduate curriculum.

The expanded staff would serve mostly for graduate teaching and research. Even here, some aspects of modern biology which are crucial to the development of strength in environmental biology are omitted completely. This will be developed below.

10. (pp. 24-25)

The building plans for the Life Sciences Center are being developed with hearty cooperation between the Departments of Biology and Psychology. All of the development of data on space needs for biology have been based on a panoramic view of biology, including both the areas thought of as "modern" including biophysics, chemical and microbial genetics, experimental embryology, etc., and modern approaches to the areas more often considered traditional, including systematics and ecology. Within the framework established by the "Manual of Procedures and Standards for Building Space Planning" one of the undersigned has done most of the assembing of data for this Department. In such planning, it was felt that a pressing problem was to provide appropriate

space and facilities for teaching and research by a Faculty which has suffered through years of miserably inadequate facilities. When we see the specific indications of the individuals who are thought of in the memorandum of June 13, or the listing of suggested positions in the Report, we fear that the relatively modest needs of these long-dedicated members of our Department may be pushed to one side, in favor of the "modern biologists" to be added to the Faculty.

11. (pp. 25-27)
-16.

a. It is not true that there has been a "virtual absence of laboratory facilities for research and graduate education." By acceptable modern standards, it is true that the space is woefully inadequate, and that we have definite deficiencies in equipment, but during the past several years our equipment situation has improved immensely, and we have made absolutely maximal use of our space, thus enabling us to increase measureably the doctoral research programs. Much of the increase in equipment has been the result of funds provided in the NDEA program, which this Report chooses to ignore completely.

b. In his statements concerning faculty productivity, Professor Runner has been overly selective, choosing to mention only a few, and ignoring others, whose work would not support his thesis. Moreover, when one considers the teaching loads in this Department, compared for example with those of the faculty of the School of Medicine, plus other services to the University and to the Department provided by members of this Department, the record of accomplishment is very good indeed.

c. The statement on p. 27 that the Department of Biology "has 15 faculty members and 27 graduate courses in the area of environmental biology" is patently false. Even when one lumps together the courses in environmental and systematic biology, it is still untrue. In the listing on pp. 5-6 we have indicated the activities of the faculty in terms of teaching and research. When one examines actual course offerings, with numbers of 500 or higher, it is clear that there are but 35 such courses, of which only 12 can be classified as environmental and systematic. We strongly protest the gross misrepresentation of this report.

d. If environmental biology is to be strengthened in this Department, there must be increase in staff for contributory fields, not usually classified as environmental. Certain kinds of physiologists, geneticists, and microbiologists would add greatly to our strength. The addition of a "molecular systematicist" would at present be of little help. It is to be noted that there is not a single suggestion for increase in staff to help build environmental biology in the Report. Even the cell biology staff suggested later in the Report is directly related to developmental biology. And this approach of the Report is developed in the face of widespread acceptance of the idea that environmental biology will be a major focus of all science in the near future. It is to be recalled that Sir Julian Huxley, in his lecture here during the Spring Semester voiced just such an opinion. From the wording they use, from

their failure to provide increased strength of staffing which would contribute to environmental biology, and from their inability to present a fair picture of the possible developments in environmental biology, we can conclude only that either the persons who prepared this section of the Report are making a deliberate effort to provide stagnation in this field, or that they suffer from intellectual and scientific glaucoma.

17. (pp. 27-28)
-19.

The statement that "Because cell biology constitutes a major and rapidly expanding segment of the field of biology, its virtual absence from the Boulder Campus in the graduate and undergraduate training programs must be held as a serious deficiency." is thoroughly misleading and essentially untrue.

a. In the Department of Biology there has been for years the only graduate level course in general (= cellular) physiology in the whole University, with the only unified presentation of the complementarity of structure and function (at the cellular and molecular levels) presently available to graduate students and selected senior undergraduates in the whole University. This course is and has been taught by one of the undersigned.

b. Throughout all of the courses in general biology, genetics, physiology, and embryology, there is very heavy emphasis on modern ideas of the cell's structure and functions in relation to the maintenance and reproduction of the organism as a whole.

c. This Faculty has urged that there be strengthening of course work and other educational opportunities in cellular biology at all levels. But we insist that such strengthening not be at the expense of strengthening in environmental and developmental biology, especially in terms of experimental approaches.

d. Why is there no suggestion of addition of a cellular physiologist in the Department of Physiology of the School of Medicine?

e. Referring to the memorandum of June 17, 1964, in which a faceless group of "our colleagues" have provided a blueprint for the development of biology, we find it curious that three individuals who have probably been teaching more molecular biology, in terms of student-contact-hours, than any in the University, are placed in the section of the Division called "environmental and regulatory biology" while that section is to have no appreciable change in staffing. Yet, as noted above, one of these three teaches the only broad course in cellular physiology in the University, was trained in cellular physiology, and was engaged in "molecular biology" before the expression was invented.

f. All of the genetics staffing proposed for the furture is placed in the area of cell biology. There is no provision for additions in either population genetics or plant genetics. Yet population genetics is an extremely active and promising field, with immense potentialities for the welfare of mankind.

g. Nowhere in the Report is there any suggestion of the strengthening of staffing in neurophysiology, yet this might be included in the cellular biology, or environmental biology, or psychobiology sections. It is particularly noteworthy that the most recent Nobel Prize awards in physiology and medicine have been in the field of cellular aspects of neurophysiology.

20. (pp. 28-29)
-23.

As we pointed out above, the Department strongly supports the idea of making developmental biology a major strength of the Department. This was not mere lip service; we recognize that Professors Runner and Daniel are actively engaged in research and teaching in this field and think of them as a strong beginning for such a program. Moreover, the history of the Department over the past decade or more will support the idea that we do wish to provide strength in this field. This can be documented. However, we do have some areas of disagreement with this section of the proposal.

a. We want a developmental biology program which has breadth in terms of fundamental biology, and not one which is keyed primarily to clinical relationships. We wish to see staffing which will offer opportunities for study of problems of development in lower animals and plants.

b. The admission in the Report that "Developmental and cell biology complement each other, and often it is not possible to decide where one field ends and the other begins" is something which we have and do recognize. As we pointed out above, we want to strengthen cell biology in such a way as to aid in the development of both environmental and developmental biology. But the authors of this section of the Report seem to see cell biology primarily as related to developmental biology.

24. (pp. 29-30)
-26.

Speaking for ourselves, and not for the Department as a whole, we support the concept of strength in psychobiology (or biopsychology as it is designated in this section of the Report. Referring to the memorandum of June 17 again, because in this we see possible specifics for the implementation of the proposal of the Report, there are named three persons of the Department of Psychology, one of whom has not yet been appointed. Why are there no others included, as for example, Professor Donald Mason, carrying on research along several significant lines in physiological psychology, Professor Maurice Smith, engaged in studies of developmental correlates of behavior, Professor Ray Walsh (Dept. of Physiology, School of Medicine) with national and international reputation for studies of intercellular transmission, and Professor Paul Winston, engaged in fundamental research on behavior of arthropods, especially mites and insects?

Conclusion

We regret deeply that we have felt compelled to write to you in this manner. We realize that our language has been intemperate at times, but we have had engendered in us a combination of despair and frustration

such as we have never before felt. Moreover, we believe that we have expressed in general terms the attitudes of our colleagues in this Department, though most of them would not be so intemperate in language.

We wish to assure you most sincerely that we do not want to stand in the path of any actions which will extend the strengths of biology in particular and the University in general. On the contrary, we have for years sought diligently to raise the stature of this Department, as have all of our colleagues. We are proud of being biologists first and secondarily are proud of our own specialties within biology. We have frequent disagreements in interests and points of view, but we respect each other, as we respect all of those who selflessly and conscientiously seek to contribute to the education of the young people of this country, and who earnestly seek to expand knowledge.

At the same time, we feel that our mission as biologists on this campus is different from that of the School of Medicine, and that our suggestions of ways to accomplish this mission have validity. We have written in this fashion so that you may know that there are other voices than those which have been presented to you. We strongly support our Chairman, whose service during the past year to this Department has been truly outstanding, under circumstances which have been frightfully difficult. We urge that before a final draft of the Proposal is prepared, consultation with our Chairman at least, and perhaps with other members of our Faculty be held.

Finally, we would like to suggest that the Faculty of this Department is eager to move forward, and would like to have the opportunity to develop new programs which might parallel the more traditional approaches. But if we are to be successful, we must have the time to confer and discuss various approaches, and we must feel that our voices will be heard. We will be happy to confer with any and all members of faculties of other Departments, in order to arrive at agreement as to the development of interdepartmental programs of merit.

Should you wish to confer with any or all of us, we are at your service for such conference.

Sincerely yours

cc. Dean William Briggs
Acting Dean Ernest Wahlstrom
Acting Dean Robert Browder
Dean Max Peters

Edwin R. Helwig

Charles H. Morris

Sam Shushan

Olwen Williams

Feb. 2, 1972

Dr. Richard Jessor, Chairman
Council on Research and Creative Work
Graduate School
CAMPUS

Dear Dr. Jessor:

The accompanying vitae reviews in some detail the achievements and scope of stature of our nominee, Dr. Askell Love. The international recognition he has received, and esteem in which he is held, far exceeds that of any other member the Department of Biology has ever had, and matches that of the half-dozen most eminent scholars, past and present, of this University.

His specific activities and publications of 1970-71 were summarized in late 1971 in another connection, and are here presented separately.

In view of Dr. Love's proven eminence in research, his 8 years of service to the University (half of that time as Chairman of the Department of Biology), the entire 7-member Executive Committee of the Biology Department strongly and unanimously recommends him for a 1972-73 University Research Lectureship. We point out that he is eminent in the best tradition of internationally outstanding scholarship: his expertise is extremely broad, including not only his field of chief thrust, cytotaxonomy, but also the facts and theories of evolution, systematics and historical biogeography. Furthermore, although much of his productivity comes from small works, including many reviews, he has produced several book-length works, some of which are standard classical references that will not be superseded for many years. The depth and breadth of his expertise are rarely matched. Recognition of his eminence by award of a University Research Lectureship is long overdue.

Very sincerely,

Robert M. Smith
Chairman

RMS:jh

TEACHING FORMULA BIOLOGY DEPT.
(effective Fall, 1972)

Each Faculty member must fall into one of the following categories:

1. Total students in courses ± 100-150/yr., excl. of seminars: minimal course formula of 1 + 2 (excl. of seminars)/yr.
2. Total students in courses ± 200 or more/yr., exclusive of seminars; minimal course formula of 1+1 (excl. sem.)/yr.
3. Total students in courses less than ± 100/yr., excl. of seminars: minimal course formula of 2+2 (or 3+1)(excl. sem.)/yr.
   These figures are based upon assumption of laboratory and/or field courses. If strictly lecture courses, up figures 25% in student enrollment. Number of graduate and independent study students, research productivity and committee-like work are to be weighed in borderline cases.

(Cuots. jmk.)

TO: All Biology Teaching Faculty

FROM: Biology Office

RE: Teaching schedule, 1972-1976

In conformance with the attached formula for teaching by our faculty, revised from an earlier edition to conform with the A & S formula correlating student loads in laboratory and in strictly lecture courses (i.e. dropping the percentage increase needed for lecture courses, as compared with laboratory-field courses, from 50% to 25%), a preliminary proposed schedule for all teaching faculty members is attached. Course numbers given in parentheses are shared. Figures at the right in each column, opposite the course no., are estimated enrollments, which should be accepted if the demand is there; they are based upon recent enrollment figures. Enrollment figures for shared courses are pro-rated. Absences for sabbaticals (other than Will's, which is assured) or Faculty Fellowships are not accommodated, since where they occur we shall almost certainly require (and get) replacement money.

Note that our course offerings are not reduced in number with this system; three are dropped but six are added. Some are given less frequently than before, but others more frequently. At least they are available. Note also that there is a reasonable consistency in number of students handled in each of the three categories (and in the intermediate one between I and II).

This teaching load and schedule was developed by consultation among selected members of the Executive Committee - the chairmen of the larger divisions and the main office personnel - and the chairman of the Curriculum Committee (D. Norris). It constitutes an internal adjustment of load, spreading formal student contacts more evenly among our faculty, in conformance with administrative demands. Some of you will carry a heavier load than before, others less of a load, but everyone will have a full commitment in terms the legislature understands - either a large student contact, or a plurality of courses. We regret the necessity of imposing a demanding regimen "across the board," but at least it is non-discriminatory with respect to formal teaching, and a good share of you will find it little if any more demanding than the levels reached this year without attempts to spread the labor as evenly as possible. The system is specifically intended and designed to allow some time for research - not as much as most of us would like, but at least some. Indeed the Administration recognizes the need for allowance of such time, and we regard it an absolute necessity. If you are concerned that this conformance now with teaching load requests by the University is just one step in a continuum toward transformation of our roles wholly into teaching, you should know that we shall vigorously resist any further augmentation of teaching demands. We have willing cooperated with the administration in the present adjustment partly through necessity, partly because of our belief that teaching merits both more emphasis and more recognition, and partly because an approximation to equalization of teaching loads has in our department become an increasingly critical necessity with the increasing and strongly skewed enrollments of the past several years. Our department is doing its fair share of teaching in this university, and always has; it now can document that fact individually for every faculty member. Any increase of demand (and the present adjustment really does not increase the total departmental output) would severely jeopardize the capacity of our faculty to maintain any creditable position for the department in the academic world; we are right now with our backs to the wall - we have gone as far as we reasonably can without a redefinition of this University as strictly a teacher's college. It would be a grave mistake for schools such as this, in the upper echelon of the University system of this country, to so sacrifice the only national reservoir of scholarly originality. This office will remain firmly dedicated to "holding the line" against any further inroads upon research time for our faculty.

The schedule proposed herewith is not final or rigid, naturally. Mrs. Owen will seek an appointment for each of you to confer with Smith at the earliest possible time, for we have but 10 days for finalization of the 1972-3 schedule. In that consultation a firm agreement upon courses to be offered must be reached. Please do what you can to tolerate the adjustment suggested, or provide alternatives that will accomplish the same ends. Remember that we are promised, largely as a result of our internal adjustment, recognition of our needs and achievements not only by a new FTE next fall, but by salary increments for next year that are largely correlated with course or student productivity.

PROJECTED SCHEDULE

Name & No. courses Offered	F 72	S 73	F 73	S74	F 74	S 75	F 75	S 76
C. Bock 4	(443) 70	102 350 (405-6)10	(443) 70 615 10	102 350 (405-6)10	(443) 70	102 350 (405-6)10	(443) 70 615 10	
J. Bock 4	251 125	102 400 (405-6)10	651 15	102 400 (405-6)10	251 125	102 400 (405-6)10	651 15	
Bonde 5	101 350 (405-6)10	321 30	101 350 (405-6)10	621 10	101 350 (405-6)10	321 30	101 350 (405-6)10	551 10
Bushnell 5	302 35 531 25	411 60	613 10 251 125	411 60	302 35 531 25	411 60	613 10 251 125	
Crumpacker 3	383 250	451 30 582 10	383 250	451 30	383 250	451 30 582 10	383 250	
Gregg 4	512(4) 25 303 20	341(3)175	431(3) 15	341(3)175	512(4)25 303 20	341(3)175	431(4)15	
Jones 3	424 200	5-- 15	424 200	219 175 5-- 15	424 200	219 175 5-- 15	424 200	
Linhart 2	583 50	383 250	583 50	383 250	583 50	383 250	583 50	
Löve 5	430 15 572 10	571 10 584 10	430 15 597 15	571 10 584 10	430 15 572 5	571 10 584 10	430 15 597 15	
Marr 2	441 125	521 55 445? 35	441 125	521 55	441 125	521 55 445? 35	441 125	
C. Norris 4	323 35	322 175	323 35 564 20	322 175	323 35	322 175	323 35 564 20	
D. Norris 5	545 35 (443) 30	102 350 (405-6)10	545 35 643 10 (443) 30	102 350	545 35 (443) 30	102 350	545 35 643 10 (443) 30	
Pennak 5	611 10	515 100 517 35	612 10	515 100 632 15	611 10	515 100 517 35	612 10	
Rogers 3	315 75	435 60 575 20	315 75	435 60 575 20	315 75	435 60 575 20	315 75	
Segal 4	425 100	sabbatical	301 120	561 25 568 12	425 100	561 25 568 12	301 120	
Shulls 4	301 120 437 50 438 12	436 50	437 50 438 12	436 50	301 120 437 50 438 12	436 50	437 50 438 12	
Shushan 6	311(4) 25 555(3) 10	312(4) 40 553(3) 10	311 25 414 10	312 40 523 30	311 25 555 10	312 40 553 10	311 25 414 10	

Name & No. courses Offered	F 72	S 73	F 73	S 74	F 74	S 75	F 75	S 76
Smith 3	692 15 (443) 20	313 100	692 15 (443) 20	313 100	692 15 (443) 20	313 100	692 15 (443) 20	
Webber 3	341 175	624 25	341 175	331 60	341 175	624 25	341 175	
Williams 5	433(3) 40 511(3) 30	434(3) 40 5--(3) 15	433(3)40 514(3)20	434(3) 40 5--(3) 15	433(3) 40 511(3) 30	434(3) 40 5--(3) 15	433(3)40 514(3)15	
Windell 4	101(4) 350 (405-6) 10	548 10	101(4)350 (405-6)10	547 20	101(4)350 (405-6)10	548 10	101(4)350 (405-6)10	
Winston 4	322 175 543 12	544 12	322 175	641 15	322 175 543 12	544 12	322 175	
New FTE	101 500 (405-6) 10	?? 35	101 500 (405-6) 10	?? 35	101 500 (405-6) 10	?? 35	101 500 (405-6)10	
Nichols 2	----------	476(3) 10 591(3) 10	-----	476(3) 10 591(3) 10	--------	476(3)10 591(3)10	-------	
Mayer	400 10		400 10		400 10		400 10	
Maslin	432 12		432 12		432 12		432 12	
Hannon	642 6	642 6	642 6	642 6	642 6	642 6	642 6	
Weiser	219 175	664 6						

SUMMARIES

A. Faculty Allocation & Student Nos./yr.

Category I (1-2)	Category I-II Intermediate (Alt. 1-1 & 1-2)	Category II (1-1)	Category III (2-2)
Bushnell 120-195(157)	Gregg 190-220(205)	C. Bock 430-440 (435)	Löve 40-50 (45)
Pennak 125-145 (135)	Marr 180-215(197)	J. Bock 425-535 (480)	Shushan 85-105(95)
Rogers 155	C. Norris 210-230(220)	Bonde 370-390(380)	Williams 115-125(120)
Segal 137-157(140)	Winston 190-199(194)	Crumpacker 280-290(285)	
Shulls 112-232(172)		Jones 215-390(302)	(Range of means, 45-120)
Smith 135		Linhart 275	
(Range of means, 135-172)	(Range of means, 194-220)	D. Norris 415-425(420)	
		Webber 200-235 (217)	
		New FTE 535	
		(Range of means, 275-535, exc. Webber, 217)	

B. Courses Completely cancelled until more Faculty added.

332 Field Zoology (expected, ± 50/sem.)

442 Ecosystems N.A. (not given since Spring,'70)

558(2) Seminar on Ecophysiology of Alpine and Arctic Plants

C. Courses Added

Jones: 5-- , Vertebrate Reproductive Physiology

Bock, D. Norris, Smith: Vertebrate Natural History

Williams: 5--, Field Ornithology; 511, Birds of the world.

New FTE: Pollution Ecology; Prokaryotic biology?

Boulder, July 12, 1974.

Professor David W. Goodall,
Ecology Center,
Utah State University,
Logan, Utah 84321.

Personal.

Dear David:

I ought to have written earlier, But I suppose you have been away or at least as busy as always, so you may not yet have wondered about my tardiness.

I returned a month ago from the good Japanese trip, but it took me well over two weeks to rest and adjust. This was partly caused by the longitudinal change, but mainly by the fact that the travels were extremely strenuous. Although I arrived at Tokyo in the middle of the day, it actually was after midnight for me. Nevertheless, I had to spend several hours at a meeting filled with formal speeches in Japanese and German, and not until 8 in the evening, Japanese time, were we allowed to go to our rooms and then immediately for a dinner that ended at or after 10 p.m. And we were told during the dinner that the morning call would be at 5 a.m., at 5.30 our luggage must be outside our doors, and at 6 we must have had breakfast and leave for the airport. We were in southern Kyushu around 10 in the morning; after a formal reception by the governor and other dignitaries and a glass of wine (fruitdrink for me), we went to our two busses, and then drove around and walked in beautiful forests and on volcanoes and other mountains to see the influence of man, and did not get our lunch until 3 in the afternoon, on tatamis high up on the slopes of a volcano with a primeval forest and a fantastic view. That evening we came to the hotel at 8, could see the smoke of a live volcano from our windows for some minutes, but had to be at a very formal reception at 8.30, followed by a delicious Japanese dinner to about 10, when we were shown some movies and given the first of the literature on Japan and its ecology that slowly grew into about 50 kg of books and maps! And next day the same pace, and so on. During the first half of the excursion we had more rain than we would have wished, but thereafter the weather was excellent and never too hot. I will not tire you with details from the excursion because it took three weeks of the same pace as the first day, but you will envy us when I tell that this was the finest excursion that I have ever taken part in anywhere, well organized and top-level every day, with too good food and every night in luxury hotels only. We learned more about practical sociological mapping and sensible methods to reclaim disturbed areas than ever before. I admire the Japanese for what they are doing, though my I hope creative mind gave me ample opportunities to add small small proposals for improvements now and then because I am convinced that all efforts of reforestation and reclaiming disturbed areas are futile without full utilization of scientific breeding of new gene combinations instead of trying to employ old gene pools that nature has selected for other situations. One does not pour new wine into old bottles, as the Bible says, or perhaps the other way in this case. The symposium afterwards was also extraordinary, and there I had some opportunity to discuss the ideas that combined phytogeography and plant breeding based on

the isolated gene pools of amphi-pacific and nemoral disjuncts could do wonders in the reclaiming of factory areas and urban blight in Japan and North America. I was somewhat astonished to observe how little the Japanese phytogeographers understood in cytogenetics, but when I thought of this, those who have been educated in botany departments in America are probably no less ignorant in this important evolutionary field, but the Japanese have geneticists and plant breeders widely superior to any of those I know from this continent, and even better than the best ones in Scandinavia.

I was more than sorry that you were not with us, especially since that was caused by a misunderstanding. Professor Miyawaki had space and funds, even some travels funds for the flight from overseas, for 55 foreigners, and when Tüxen told me that he would want me to propose some two more for positions which then were vacant, I proposed you, as I told you then. But he was busy with a large meeting in Germany and is also growing old, and when he at last reacted after a month or more, Miyawaki had become impatient and had invited two others. However, there still was a space because Doris had declined, but Tüxen refused to believe it until when I came alone to Tokyo (and explained our situation which he felt was unbelievable, but like he had seen in Hitler's Germany when all were afraid to help those so treated) - and because of this we were only 54 from abroad. Both he and Miyawaki were sorry for the mistake, but what could we do then? However, we got very good contacts with our Japanese colleagues and with those who support their work in Japan, and they indicated that they would need to get small groups of specialists annually to help them with various kind of advice in the years to come. I discussed you and some others with Miyawaki and I trust that he will remember this when that time comes. Otherwise, he knew you and your work even better than I do and told me about some of your studies from Australia and Africa, and another colleague working with higher plants had Dixon's new book on Rhodophyceae on his desk....I had not seen it myself, but mentioned that I had learnt about this group from one of my teachers in Lund, Harald Kylin....and he also had his book on his shelves! I would love to be there with you and a smaller group sometimes soon - and then also get an opportunity to show you around in Iceland in the summer when the Arctic has its nightless days! Naturally, during the trip we took many pictures, though fewer than I would have liked, because of the weather first and then later because we were in such a hurry, and we saw less culture than nature so that also reduced the picture-taking in this country of old culture, but when you come our way and have a chance to stay at least overnight, there will be no risk that we will run out of Japanese material to look at and discuss before we are forced to send you to bed in our guestroom.

Our situation is otherwise the same, as could perhaps be expected in this peculiar country, where the main quality even at the academic level seems to be that of conformity and lack of spine, or even of a shadow. Since I returned, I have been told by three institutions that they had filled their positions with better qualified people, one of whom was a recent student from Irvine to fill a position in evolutionary taxonomy of higher plants. They had advertized, of course, but I have seen that advertisements here are dishonest fronts to be able to say that the position had been officially advertised, when criticism comes from minorities, and most are filled behind the backs of the applicants and before they are opened up officially.

I must admit that since we had heard nothing from Irvine for months and knew that Dixon had contacted you and offered you the position after my application had been received, we felt that we were again being treated by the same unfair way as elsewhere and so we had ceased to even think about Irvine as a possibility and talked about it as another case when advertising is used as a front for clandestine operations of the kind that are destroying the quality of American botany. However, in this we apparently were unfair and we ought to have realized that people brought up in England have a very different moral to that we had seen in America. About a week ago we were pleasantly surprised when I received a letter from Dixon saying that the committee had had to suspend its activities until the return of the members in the fall, when he would write me again. Ending his letter by saying that "I wanted to keep you informed as to what was happening and confirm our continued interest in your candidature for the position."

This at least restores my faith in that Englishmen always remain fair and well-mannered wherever they live, although I do not know if I should dare to trust that his words mean more than simple politeness, since I cannot forget that he contacted you after I had applied; that is not as clean as I would do in such conditions, but I do not want to be unfair to a man I do not know who probably is being very fair though tied up by other members of his committee. I have become too touchy so I wonder if his lack of eagerness indicates lack of interest or perhaps that he believes the nasty rumors that I myself have heard about me from nasty tongues. Since I only know Boughey superficially and none of the others at Irvine, and since my application papers may not be sufficient to counteract the rumors which they probably have heard, and since no real peer of ours is at the Department (one who comes closest to it is perhaps Arditti, an orchids specialist in a sister department at Irvine), I am afraid that I am at a disadvantage even in Dixon's British eyes, especially since I was never asked for additional information and never for referees. However, I hope that you do not feel that I am being foolish in writing to thank Dixon for his letter and suggesting to him that he use the summer vacation of the committee to ask some people who know me well for their critical evaluation. I give him first the name of Knut Faegri, who knows me best and is the greatest of my old friends; he is presently the President of the IUBS and was in that capacity in Japan though I did not tell him about our situation because I did not want to hurt American science through the unavoidable reaction of this honest man. Then, in case Dixon would like to ask some others, I give him the names of Tüxen, David Valentine of Manchester, Zdeněk Černohorský of Prague, Per Brinck of Lund, Ernst Mayr of Harvard, Bill Weber and Jack Ives of Boulder, Benninghoff with whom I was in Japan, and yourself. I hope he does not spend time to contact them all, because I myself would be satisfied with Faegri alone, and so would you, and also hope that this does not offend him - but then he had likely already made up his mind so it does not matter what I or others say.

I am sorry that we have discovered the truth of the need for a passive waiting, as Richard Goldschmidt said was his experience, in his excellent biography. However, Goldschmidt, a zoologist and geneticist that all European evolutionists held and still hold in a very high esteem because of his fine work and independent ideas that differed from the American ones, found a single botanist who for weeks did nothing but to work for him and so pressed him at last into an assistant professorship at Berkeley that was advanced to full professorship the following year. This man was Ernest Babcock, and it was thanks to him that Goldschmidt could add several books and numerous

other contributions to his production and give Berkeley and America a reputation that will strengthen with time. And Babcock's name will be remembered not only as that of a great geneticist:"Once on a time there was a Man", said Kipling.

So I do not know what to do or whom to ask to try to do something for us, though I am convinced that Irvine could give us not only the security we need and facilities to employ our creativity, but also that we could help the group to do even more than they are doing now and perhaps add new and still more fertile ideas to their own, including the phytosociological mapping and planning of the environment of which so many of our colleagues speak but cannot teach the students about. But only if Dixon and his committee can be convinced that we would be of value to them. Do you have an idea how that could be done and who could be of help in this at Irvine? Or perhaps you do not really want to spend time and efforts to help us although I have gotten the idea that you want to do just this. We have the feeling that others do not have any interest in this, except Jack Ives, probably because people realize that there is a need to organize a massive support from the outside and inside exactly as did Babcock years ago at Berkeley. And although history may thank those who do it, as it will thank Babcock, because God pays for the raven as one says in Iceland, it is not so sure that anybody will feel that would be sufficient as thanks for a good deed.

Actually, I must admit that I am not particularly interested in an administrative position, although I have seen how my democratic ideas did help to improve even the hole of ignorance like the Biology here, which since has again sunk back even deeper than it was previously. My interest in California has to do with its climate and that our family lives there, but also with its facilities for evolutionary and environmental studies and the progressivity of many of its people as compared to conservative Colorado and the uncreative and uncultured minds on the prairies. I would be pleased to accept just an ordinary professorship, if that could be made available, whereas Dixon himself, or you, could accept the responsibility of administration; but if those involved should have the feeling that I ought to do this, I have never reneged to do hard work whatever it has been. The main thing, however, is to get away from here - and who wants to help Jack Ives and you to do just that for us?

Although it was disappointing to return to the situation here from the higly cultural atmosphere in Japan, there have been some encouraging developments. We have been told that the book based on our computerized chromosome atlas of the Slovenian flora, which the bigots tried to prevent us from completing, is selling even better than expected as far as the orders show, and those who have previewed it have been very enthusiastic. Our book about chromosome cytology and cytotechnology has been favorably reviewed by one of the largest publishers in London and New York. And we have been asked for permission to reprint our 582 page chromosome work for central and northwestern Europe from 1961 in a German series of classical monographs. However, we cannot live on that pleasure, and even the most creative of scientists have difficulty in working among minds that are dead or hostile or both.

I would like to write some more pleasant matters and to simply chat with you about ideas far from those of our science, because I know that your interests are also wide and deep. I would also like to think that you have had a fine trip to Sweden this spring or summer and that you have enjoyed the culture and beautiful nature there, especially if you have been able to visit the mountains of Lappland and the plains of Scania in the far south and perhaps even look into the good old cathedral in Lund, which for years was ours as it has been for generations in almost thousand years. But I am afraid that I have tired you too much already and perhaps scared you away from any friendship with us, though I hope that you are still willing to listen to my complaints and to forgive me for what I say wrong and to help us as much as humanly possible - as I would also help you or other colleagues if needed. We still try to hope for the best after having experienced too much of the American...."...law of the jungle - as old and true as the sky", as said the English poet whom I have always liked even more than any of my good Icelandic ones.

With the very best regards from us both.

Yours as ever,

Askell Löve

Boulder, June 27, 1973.

Dear Herbert:

Your letter warmed us at the heart and added confidence and hope and showed us that we have some few more friends of the kind that perhaps only Britain can foster, although it is bad to know that the mountains separate us. The latter fact I have long felt, but hope this will change. I am sure that your letter to Dean Drahmann has impressed him, and I hope you will find some means of following it up yourself or through your and his friends because otherwise nothing might happen. But if this does not help, perhaps you have friends who know possibilities elsewhere? You know that we have never been looking for places that would, hypothetically, give us some prestige, simply because we feel we ought to give prestige to the places where we stay by doing our best. Doris says that she has seen somewhere that Winslow Briggs has said that he is interested in strengthening also the "biosystematics" of the C.I.W. but he may not mean this so that that branch also could cast some shadow as does the fine physiological part; but I am sure Hiesey would be positive. And our daughter tells us that somebody has mentioned Santa Cruz and Jean Langenheim. I know neither her nor Briggs or anybody who knows them, do you?

We are shocked as others about the Watergate and all that it shows us of corruption, not excluding the "enemy list", although we have known of such methods for years and directly experienced the Smithsonian witchhunt for three years at least, even a witchhunt here because we are non-molecular. This all has at last shown me the truth of the good old saying "homo homini lupus" - at the same time as it has got my real friends out into the open. I sincerely hope that these friends will very soon be able to help change this our American nightmare into the old dream we had when we came to here - and we realize that you may be more likely than all the others to get this done. I am sure that your satisfaction will then become more worth than the wealth of old Krösus.

Jane and Carl were here yesterday - best regards from them. They are moving into a new house, although they did not get the recommended tenure and promotions we hoped for this spring. As you know no less than we do, they are pearls who ought to be where the mounting is more cultural than this large but measly college with an inflated name. The same goes for Yan, who now is in South America.

Again, our warmest thanks for your friendship, which we hope to be able to foster much better in the years to come, preferably from your neighbourhood. And then we also hope to be able to do something for you sometimes, although your efforts always will make ours seem measly unimportant.

All the best to you both from us both,

Yours,

473 Harvard Lane, Boulder, Colo. 80303,
July 7, 1973.

Dear Herbert:

Many thanks for the copy of Dean Drahmann's acknowledgement, which shows that they have at least not yet made any decision that he wants to tell about. I hope your optimism is more correct than my pessimism. I hope you understand my impatience, but what would you do in our place? I know that if Pitelka knew about our situation, he would be as willing as you to try to help, and so would several others around you, but would it be wise? I have also been playing with the idea that perhaps Jane and Carl could write you a personal letter with some kinds of evaluations and recommendations that you could then forward if you feel this would be wise and helpful...as a matter of fact, if I can get to them some of the next few days, despite of their moving and lack of home telephone for the time being, I will mention this to them, and then you will make your decision when that time comes. Let me add, that I cannot but remember, when you are helping us, what Goldschmidt wrote in his autobiography about the help he got from Babcock when trying to get away from the fascists in Germany, and still more what he told me personally about this all and about his admiration for Babcock (whom I knew also for immense help to my brother when he came to Berkeley as a young student), and then how pleased Babcock was when he himself also told me about the success of Goldschmidt, whom he admired more than words could tell. I hope you can feel similarly when we all have become old and can look over the results from the work that your help will generate under the same sky.

We have been sweltering in a desert heat for weeks now, culminating with 103 degrees yesterday, a record high which comes close to the alltime record long ago. It looks to us as if all these old records in the summer and winter were set before the warm period set in that we have lived in, and it may thus support the predictions of another very cold period that the climatologists say we are already in the middle of. The Icelandic climate seems to support them also, so that my brothers tell me that May this year was unusually cold and also June so that in northern Iceland no trees had become green at midsummer! We should get you up there sometimes in July to let the midnightsun keep you awake, as it did with Pompidou and Nixon!

Although it is not easy to work under stress of the kind we still have, we are trying to get away some manuscripts on our Yugoslavian nomenclatural changes and also on the cytotaxonomy of Spanish plants. When that is over, we may perhaps find energy to continue with four long manuscripts which we have been tossing around for years and slowly adding to, on evolutionary classification, continental drift - evolutionary biogeography, cytotechnology for botanists, and polyploidy. It may be as in the Goldschmidt case when we have at last gotten into a more cultural climate, who knows? But one of the nice genera we have discovered needs a new name will get that of one of our Californian-Bristish friend.

Again our very best thanks for all you are doing for us, and best regards.

As ever,

June 22, 1973

Dean John Drahmann
University of Santa Clara
Santa Clara, California 95053

Dear Sir:

I have recently heard that Dr. Askell Löve, of the University of Colorado, is interested in relocating in California in an institution that would give him the opportunity for close contact with the unparalleled natural laboratory which this state provides for the student of plant evolution. I believe that it would be greatly to the advantage of the scientific community of northern California if the University of Santa Clara were able to make this possible.

Dr. Löve is a leading, internationally recognized authority in this field, with boundless energy and a truly remarkable capacity for discussing the subject in a stimulating manner. He has a very large publication list, a perusal of which shows the breadth and depth of his scientific and cultural concerns. Dr. Löve is also the possesser of an enormous private library which he has always made available freely to colleagues and students at Boulder.

Finally, Dr. Löve's wife, Dr. Doris Löve, is a cyto-taxonomist of comparable stature and is very actively engaged in teaching research and student counselling. Together, they are an intellectually very formidable but extremely hospitable team!

Both of the Löves are working with modern methods of information storage and retrieval which could be advantageously employed in an institution that is growing at a time when financial stringency makes the expansion of conventional library facilities difficult. I believe that Dr. Löve's application merits very serious consideration and I hope that it is not too late for this to be given even though several months have passed since the original announcement of the opportunity.

Sincerely,

Herbert G. Baker
Professor of Botany

HGB:mf

H. G. Baker
UNIVERSITY OF CALIFORNIA
DEPARTMENT OF BOTANY
BERKELEY, CALIFORNIA 94720

Boot

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PAR AVION VIA AIR MAIL CORREO AEREO

Dr. Askell Löve
473 Harvard Lane
BOULDER
Colorado
80303.

UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF BOTANY BERKELEY, CALIFORNIA 94720

June 22, 1973.

Dear Askell:

I enclose a xerox copy of a letter that I have sent to Dean Drahmann at the University of Santa Clara. You may be sure that I hope fervently that it will be effective and that you and Doris will be able to relocate in California.

I was shocked, of course, to get Jane's telephone call and to hear that you have troubles. I should emphasize that she never told me ~~the~~ anything of their nature and I didn't enquire because I am personally convinced that they must be the results of misunderstandings. I know the tremendous contribution that you and Doris have made to broadening the intellectual life of Boulder (Jane and Ian both testify to this) and I believe that you could do this again elsewhere.

The Carnegie Institution situation at Stanford has changed considerably in recent years. With the retirement of Heesey the program became very much more physiological and biochemical. Olle Bjorkman is much more interested in photosynthetic processes than in "biosystematics" and the trend in this direction is about to become intensified with

the appointment of Winslow Briggs as the new Director (for whom they are building a whole new laboratory wing). The transplant gardens now serve Stanford University more than C.I.W.

I hope that all these problems can be worked out and that the bad dream will pass. I'm glad that you have some good friends in Boulder; remember that there are others elsewhere! And we'll do whatever we can to help.

Very best wishes to you both.

Yours,

Herbert.

TEL: 984-4317

THE UNIVERSITY OF SANTA CLARA · CALIFORNIA · 95053

COLLEGE OF SCIENCES
OFFICE OF THE DEAN

June 26, 1973

Professor Herbert G. Baker
Department of Botany
University of California, Berkeley
Berkeley, Ca. 94720

Dear Professor Baker:

Thank you very much for your comments regarding Dr. Askell Löve. They will be most useful in assessing his suitability to be Chairman of our Department of Biology.

Very truly yours,

John B. Drahmann
Dean

JBD/jc

Dear Askell + Doris:
Thanks for your letter.
Hope this works out.
All the best.
Herbert.

UNIVERSITY OF CALIFORNIA
DEPARTMENT OF BOTANY
BERKELEY, CALIFORNIA 94720

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Boul

Dr. Askell Löve
473 Harvard Lane
BOULDER
Colorado
80303.

PAR AVION VIA AIR MAIL CORREO AEREO

H. Baker, Berkeley Dept of Bot. etc

Boulder, June 19, 1973.

Dear Herbert:

Jane has told me that she has phoned you to tell about our difficulties, and suggested I write to you. I know that you would be as reluctant as I am pushing my troubles over onto others, but she insisted upon telling you about them, and since I need your help now and know that you are always ready to help others up to the peak of your abilities, I hope you forgive me. And I hope she explained the situation so that you know that I refuse to defend myself against any accusations, written or oral, wrong or right, simply because in this case it would hurt very badly the Yugoslavs and the students involved who accused me of wrongdoing when I was helping them, after the lower echelons at the Smithsonian had slandered me as a scientist for years in the name of my peers who were not consulted - and none of whom has been great enough to protest. But that is American. I am not an eye-for-eye and tooth-for-tooth believer but hope I could rather be said to be a Christian pagan who does not want to hurt others and rather shows the other cheek. But I may be wrong.

Jane told me that you had suggested that we go to Yugoslavia. They have no place for foreigners and enjoy talking as they have always done, and their system is nothing for us. And we want to stay in America where we can make considerable contributions yet, with our family and with the admittedly few but very admirable friends whom we have found in various parts of the country; it may seem somewhat peculiar that several of them are Englishmen of whom our very best friend here, Jack Ives, the only Boulderite with guts when we needed it, is from Grimsby so his brother-in-law is presently fighting the fishing limits in my own homeland.

We have long wanted to move closer to our daughter, who lives in Campbell, and my brother, who lives in Napa, because I am brought up in a large family and love those who are closest to me. Therefore, when Dean John Drahmann of the College of Sciences of the University of Santa Clara advertised in Science in early March for a chairman of their small Biology Department, apparently with the intention to upgrade its undergraduate teaching and inject more interest in research into its faculty and students, I wrote to him and told about my interest. The week before, however, I had written to John Mooring, who has enjoyed resting there for the last ten years or so, and asked for his support. His reaction was, however, evidently that of some fear, because he told me that I was overqualified for the job and then recommended that I contact the dean only if I felt this was a challenge. Since I always feel that what I try to do is a challenge, I did this at once. I must admit that I am constantly somewhat astonished when told that I am overqualified, because discrimination on basis of better qualification is more unfair than any other kind of bias, and actually has hurt both institutions and students more than we can estimate. In my eyes, nobody is ever too qualified for any job he wants, whereas there are many of our colleagues who have too low qualifications and are free of interest even to remedy this, to the detriment of their students. The same is true when age is mentioned, because with it ought to come certain invaluable experience.

I realize that Santa Clara, as other private and even public institutions, is feeling the financial crunch of the Nixon era, and believe that Dean Drahmann has not even acknowledged my letter and credentials so far because he has been waiting for the economic review of his school and may even have been too optimistic when he advertised. But I do not believe that a progressive dean would summarily assume that anybody interested is overqualified or doing this with the thought of excessive pay, though such happens. He is a physicist, I believe, and as such he may perhaps think that our kind of biology, or should we say genetics, would not be as fashionable as the molecular brand, though I hope not. But I have the feeling that he has still to make his decision for which he might appreciate an unbiassed opinion from elsewhere, and I trust that the fact that I have not heard from him is to be regarded as a positive sign.

I know that you may be reluctant to press anybody for anybody, not least because you have seen so much of the eye-for-eye mentality of this country, but also know that you have done this before and that without your help we would never have gotten the excellent Boughey to this continent. Therefore, since this is extremely vital for us, I sincerely hope that you do not feel that I am asking for too much if I beg you to contact dean Drahmann, preferably per telephone or in any other way you feel to be more appropriate, as soon as possible, in order to give us your recommendation. I do not think you should feel badly about using a small white lie if needed as an explanation of the long time that has elapsed since I wrote to him, because I could have contacted you for this already in medio March, and you could have been away much of the time, as Jane indicated to me. You would not need to tell him about our misfortune into which we fell much later than my letter to him, though you may if you so feel. But you would be allowed to tell him whatever you feel he ought to know about me and Doris, including the fact that she has been teaching very effectively here for nothing but a low title for years and would also do there if asked. You may tell him that my last salary here has been $21.000 for the academic year of nine months, occasionally with some additions for summer school or research. He could be told that we would accept some reduction if necessary, though perhaps not as drastical as when we came to here from Montreal and were cut from about the same salary as I had last year to more than 1/3 less, in addition to a lowered rank! I do not expect any decent institution would propose that. I suppose he might be told that we would be interested in contacts with the Carnegie facilities for us and our students and colleagues since we could help them with their enormous Poa material and add some new experiments on adaptation - and other such matters as you feel might be favorable, and that if I should reorganize biology anywhere, I would do it on basis of modern genetics and not 19th century anatomy and physiology.

Perhaps all this will be in vain and without meaning, since other and more appropriate applicants may have shown up. However, I would appreciate your efforts on our behalf, and trust that you will also keep your eyes widely open for any other possibility of which you become aware should this one fall flat. In our eyes, Santa Clara is no smaller than Colorado, and we would bring with us to there the same facilities as we brought to here, in our good microscopes and large library; our only facility outside this here is a keypunch and the availability of some computer time, since we have introduced also that approach into our research and teaching the past few years.

My good, old friend, I know that I am asking you for much when I am asking you to help us find our future, and I know that it will be difficult to find an opportunity to do you or your family a similar favor, except in the feeling that continued and perhaps closer friendship will give. Nobody could thank you better for your efforts on behalf of a colleague in difficulties than will your good conscience do for ever, although I hope you will find the greatest satisfaction in the experience that we in Iceland like to put into the old words that God pays for the raven.

With the very best regards from us both to you both,

As ever,

P.S.: My home address to be used is: 473 Harvard Lane, Boulder, Colo. 80303, and the telephone is (303) - 494 - 9195. And I am trying to work at home.

473 Harvard Lane, Boulder, June 8, 1973.

Personal and confidential.

Professor Joseph C. Daniel,
Department of Zoology,
University of Tennessee,
Knoxville, Tennessee 37916.

Dear Joe:

Since I know that you are one of our few very good friends in America, and also one of the few with guts, I have been trying to write to you to ask for your help the last week, but my condition of shock has been such that this is not easy. You certainly know what kind of treatment we have been enjoying here for years since we happened to be trapped in what the administration regards as a wrong department, but I thought the height had been reached in 1970 when provost Crowe refused me a faculty fellowship and told my friends that my research was no good and only about damned chromosomes - on basis of a judgement from your former colleague Prescott. But when we came into contact with the Smithsonian Institution for our cooperative work in Yugoslavia, we got into the fire of a veritable witch-hunt the kind of which we have never heard about. It cannot have been only caused by some professional jealousie from somebody unknown to us, but what was its reason I do not know. We had to fight for our small program already before it started and then against invisible critics who even made all kinds of false claims about our knowledge and abilities and qualifications in a field which we know we top. After our first summer's work, which was terrific as to the amount of results, informations were widely broadcast - especially to provost Crowe where they could do most damage to us - that told that our peers had found our work to be inferior, although we have no real peers on this continent and our European peers found the work to be excellent, as did also the only American close peer, Harlan Lewis of UCLA. When we arrived to Yugoslavia for the second summer last year, we were shown a letter to our colleague in Ljubljana in which these and more malicious defamations were repeated through the Yugoslav scientific attaché in Washington. Although we know from experience and stories from others, that immigrants have to endure much, we thought there was a limit; this shocked us more than I can say in English, although I still realized that this was done by people of another kind than those we have had a good reason to admire in your country, and we continued to try to remember only these latter. In addition, our funds were deliberately delayed for more than a month, so that I was forced to borrow considerable sums for us and our students on conditions that would have required a skilled bookkeeper to hide, and I am not a bookkeeper. Since both our Yugoslav colleagues and the students seem to have forgotten their promises to help me, an unusually critical auditing (this the ORS told me was their opinion) was made of my report - not the scientific though - with the result that irregularities were discovered so they even claimed that I had committed what they called fraud and disallowed some of the money used and required that I pay this back. Although they may seem to have watertight affidavits, I could have protested this, but only by hurting the students and, especially, my Yugoslav colleagues who live in a distinct police state.

But my old friend the provost Crowe, however, was not satisfied that I was ready to pay this money back and showed no interest in looking into the long witch-hunt that we had endured, but required my resignation, at once and without warning, or otherwise would let the Regents throw me out the very next day, when they met for May. If I had refused, he could have gotten me to say things that would have harmed the students and the Yugoslavs, and it actually astonished me that I did not even need time to think to make my decision, I did not know that I had such guts. There has been much more harassment since then, and Crowe and company even felt that they must get Hobart Smith to add to the discrimination Doris has experienced by kicking her from all facilities to complete the fine work she has been doing to advertise this place for years, for exactly nothing. However, I will not continue to tell you about this, because it would make you sick. But I must say that I was astonished to see how much chicken we have in the Department, where only the young Bocks and Winston have dared to show us their sympathy, and, believe it or not, Sam Shushan. However, my good old friend Jack Ives of INSTAAR, stood at my side at once and continues to do so, and with him I could discuss the matters openly and get his confirmation of the correctness of my selecting rather to damage myself than to hurt others. I am proud that I am apparently different from many here and am sure that if my good father had still been alive, he would also have been proud of me and the results of that he, an agnostic or even a clear pagan, once spanked me so that I would understand the importance of following the golden rule of the Bible. Others may feel differently and think I am a fool, though I hope none of those who I believe are my real friends will feel so. Since I am unable to tell you all that I would like in this connection, I hope you will be able to contact Jack Ives by telephone before you do anything else, because he could give you more exact informations about my crime and his evaluation of me from various points of view. Please, contact him, his number is: 303: 443-2211, ext. 7909, or home: 303: 494-7765. He is frequently in the mountains now and will soon leave for Europe, unfortunately for us.

When I was at Knoxville in January 1972, I mentioned my interest to move to a better place and remember that you were very positive and got me especially interested in your grand ecological program, where I could see our evolutionary approach would fit excellently. Clif Amundsen also showed my such an interest, and I found the students to be very much in line with our thinking in these fields. However, you also mentioned that there might be other possibilities in the southeast, but we were too busy to send you a vitae, in case you might see some possibility, though I thought of doing just that. However, now this interest in moving has changed into an absolute necessity. I had completed drafting a letter to ask for your sincere and vigorous help and almost completed typing it, when Science came this morning with an ad for a new director of your fine Ecology Program. So I scrapped the letter and write this instead. I was not dreaming of an administrative position though I know that I can do well in that field when allowed to do what I know is best or believe is good without interference behind my back, but believe that I would fit for this position as the hand fits in its glove. But you may disagree.

I do not know how to express it properly in a foreign language when asking you for such an immensely important help that I know might require that you use all your abilities of persuation - if you really want to help us which I believe. You could promise your people on the committee all kinds of things that I would assist you in giving them if needed, but I am not trying to advise you on how you reach the goal I hope you want to reach. Naturally,

I do not want to let those who do not know me see the first part of this letter, because it could be misunderstood and used against me and even you, but if in your judgement it could be wise to relate this or show it to Clif and some others in case you believe it would help you to help us, then this is up to you. It is our academic future in America that is at stake, and those who have been carrying on the witch-hunt here and in Washington want nothing less. But I believe that the Program could lose nothing on taking me, not because I believe in what I can do but perhaps still more because it would get Doris also without additional costs - and I know that the ecology students here and at INSTAAR have enjoyed her lectures and help more than that of any of all us others, because her presentation of her deep knowledge of biogeography and ecology has stimulated them to new ideas and new efforts in new directions, and she has also been their translator from various languages otherwise closed to them, not only western but even Russian, which she masters. Could I express myself better than saying that I trust that you will wade fire for me as I know I would do for you in a similar situation?

Perhaps people have told you that my work is that of a taxonomist and not ecological. This would, however, be a misunderstanding, which Clif could correct. Actually, my biological training in botany and zoology was wide and deep and very variable, as is typical of Scandinavian universities, whereas our main work from the beginning was in cytogenetics which is basic to the understanding of evolution. But even most of our earliest works in taxonomy were actually in evolutionary cytotaxonomy which is fundamental to all approaches to evolutionary biogeography, that always has been our main interest. Ecology is an important part of biogeography, but although we have done only limited research in the classical approach to the field, several of our works have nevertheless been in pure ecology, plant sociology, or ecological biogeography, all the philosophy and methodology of which we are well familiar with even from our many courses in Lund. ~~and Uppsala.~~ I also got the impression when I was with Clif at the program that although it is called ecology for reasons of funding or simplicity, it actually is the most profound program in evolutionary biogeography on this continent with deep roots in various approaches including even the evolutionary methods. This could still be strengthened to the benefit of the program, and I can see hundreds of ecological-geographical-evolutionary problems which nobody has yet even thought of in the remarkable southeast.

Although we have hardly allowed ourselves a proper sleep this winter when we have been trying to complete our great computer work on the Yugoslavian flora, we have nevertheless made some preliminary writing on a book on the new biogeography, which will have to be strongly anchored in continental drift geology and in evolutionary cytogenetics. If you can help us to come to this stimulating group in Knoxville, this book could be completed soon and so would replace the somewhat outdated but excellent text by Cain, written in Knoxville. But otherwise I am afraid that it may have to stay unwritten and thus belong to our too long American nightmare rather than to our American dream which I sincerely hope you will help us to continue.

I enclose my curriculum vitae, one which is up-to-date and another version that is older but may be supplementary on several points of importance, and then also mine and Doris' bibliography (see her vitae in Amer. Men of Science), although she is not asking for a paid position. I hope you and the committee will read out of both what is necessary, and that you will complement this with the short summaries in Amer. Men of Science, Who's Who in America or some other sources of that kind. The bibliography is complete, except that I have left out a lot of Icelandic poetry and Icelandic and Swedish popular and agricultural papers. Perhaps you could copy both the vitae and the bibliographies for use elsewhere in the southeast, although I sincerely hope that you will not find that necessary to help us fast and effectively. I also hope these informations are not the most essential for receiving your help. I realize that I am asking you for so much that I could never pay you back except in our friendship, and I know that nobody can thank you better than will your own good conscience do for ever, or, as we say in Icelandic, you will find often later that God pays for the raven.

If the committee should require recommendations from others than you and Clif, Jack Ives would be a fine choice since he stands high in ecological circles though he is a geomorphologist by training. Lawrence Bliss in Edmonton worked with us on Mount Washington, and although I do not know Dwight Billings well, I am sure he would support me. So would also my recent and certainly most promising graduate, Pierre Legendre, who is presently at the Centre de Recherche Écologiques de Montréal at the Université du Québec in Montreal.

Let me end this by saying that of my colleagues from here you are the only one I would have approached for such a help, and I know that if you had been here, you would have offered your help at once. But I like another one of our former colleagues here equally much, although he retired this spring, Paul Maslin. Doris has just been at his home to talk to Mary, who recently got a sudden bleeding that was apparently caused by a cancerous growth. She takes it as is typical of her, but we know they both are worried, especially for the children and for each other. We would readily give everything we have for that her operation on June 14 will be completely successful, because better friends we do not know. I am sure that they would appreciate a short telephone call from old friends far away.

With the very best regards to you all from us both here.

Yours as ever,

P.S.: I have to work at home now, or try to do so, and can be reached on the phone (303) -494-9195. And hope this reaches you in Knoxville.

THE UNIVERSITY OF TENNESSEE
KNOXVILLE, TENNESSEE 37916
DEPARTMENT OF ZOOLOGY

Goldstein, p. 282:
"I planned to interpose out of other moral cowardice."

Dr. Askell Love
473 Harvard Lane
Boulder, Colorado 80303

End-page of J. Brown-Blanquet's 30 years Fortnight.
Fragin, School, see others, Boughey - Major - Martin

Pursey,
Billings, Bass,

These last months belong to the most unpleasant years of my life.
Everything depends on finding a job, as when the scientists fleeing by Hitler out of Germany came to America —
~~[illegible]~~ The unnerving thing is that I can do nothing myself. I know that my friends are looking out for me,
but the passive waiting has been — obviously high-strung nerves — can we ask for more at both sequences?

Boulder, September 10, 1973.

Dr. Joseph C. Daniel, Jr.,
Department of Zoology,
University of Tennessee,
Knoxville, Tennessee 37916.

Dear Joe:

We are more than sorry that we missed you when you came to Boulder, but we had gone to visit our family in California and to rest after the most unpleasant summer of lives, the months when we have seen how few people actually are interested in even protesting when a miscarriage of justice is performed, still less doing anything more. But we have also learned that we have some good friends, although almost all of them are elsewhere. One of the most enervating things is the fact that we can do so little ourselves. We know that our friends are looking out for us, especially you, but the passive waiting is hard on already high-strung nerves. Can we do something?

I know that some of the friends I mentioned to you in my letter last spring as references have been contacted by your committee, Jack already in early June and Legendre also about that time. Harlan Lewis told me here during the ICSEB meetings that he had recently been contacted, but Billings had been away during the summer and therefore did not know if he had received a request, and I suppose the same is true for Bliss. However, these names were selected haphazardly and in a hurry, and perhaps others ought to have been contacted by me and the committee? I am thinking of Paul Martin of Tucson, an old friend since in Montreal whom I helped for years with reviews of ecological books when he was the review editor of Ecology, and Jack Major of Davis, who seems to regard our work as ecological judged by what he says about one of my ecological reviews in a preface to a new book on the Vegetation of the Earth, by Walters. Also Boughey of Irvine could have been positive, since he utilized one of my papers as the first and basic contribution for his fine review of Contemporary Readings in Ecology. During the ICSEB here some few other friends who knew the situation asked if they were allowed to send letters to Knoxville, so perhaps some will come in that way; one of these was an oldtime Norwegian friend, one of the leading European ecologists Faegri from Bergen, presently the treasurer of the IUBS, and another was Sokal of Stony Brook, the leading numerical taxonomist and a mathematical ecologist with insects as speciality, and an old friend of ours. But I hope that your footwork has been such that more action is not needed, although I realize that you cannot change the time factor.

We are trying to work on some of our old projects, although this is not easy at present, and then we are also continuing with a book on the new geobotany or ecology, based on modern continental drift geology and genetics, a kind of replacement for the then excellent Foundations of Plant Geography, which Cain wrote during the war at Knoxville. We have also been asked to contribute a paper to the jubilee volume for Braun-Blanquet, the leader of European ecologists, for his 90th birthday; I was among those who wrote for his 70th volume, although I doubt that we can now present ideas that will affect the field as much as did that paper, which still seems to be a source of some stimulance to several workers every year. But all of this is hard, not beast because our small savings from a miserable salary dwindle faster that we want them to do in this times of increasing inflation, and we have been without salary for more than three months now.

I am sure you have your own problems to work with and that the new building plans take up a good deal of the time that you would otherwise use for research. But we are happy to know that you also think about us and do what you can to counteract this miscarriage of justice. The matter is even worse than I guessed in the spring, because it involves that our trusted colleagues in Ljubljana changed one of our students into an informer without giving her proper information to report, and as far as I can see there is also involved a case of what the lawyers would probably not hesitate to call conspiracy to hurt us - I hope at least that I am not imagining this. But the essential matter is the fact that here nobody seems to dare to look into the matter and request that the administration restudy the matter and instead of joining the accusers look into their motifes and try to protect us. But that you could not expect from a bunch of moral cowards who never dare to interfere or stand up and be counted except in their own small cases of less increase in salary than they think they are worth. You know the group.

We hope that you will soon come again west so we can see you, and it would be comforting if we heard from you now and then, and perhaps also from Clif or others?

Our very best regards and all good wishes to Mary and you and her mother and the children from us all here.

As ever,

THE UNIVERSITY OF TENNESSEE
KNOXVILLE, TENNESSEE 37916
DEPARTMENT OF ZOOLOGY

AREA CODE 615
TELEPHONE 974-2371

August 20, 1973

Dr. Askell Love
473 Harvard Lane
Boulder, Colorado 80303

Dear Askell:

Just a note to say that I was in Boulder for a few days last week and stopped to see you but unfortunately missed you.

Hope to do better next time.

My best to Doris.

Sincerely,

Joe

Joseph C. Daniel, Jr.
Professor and Head

pb

UNIVERSITY OF COLORADO

BOULDER, COLORADO 80302

Department of Environmental,
Population and Organismic Biology

Boulder, March 3, 1973.

Professor John S. Mooring,
Department of Biology,
University of Santa Clara,
Santa Clara, California 95053.

Dear John:

I have just seen in Science that you are again looking for a chairman of your department. For reasons that I believe are obvious to you, I am interested, and I hope you feel that I could add some experience and perhaps even some glamour that would be worth having. I am sending this letter to you and not directly to your dean because I would be interested only if you feel this would be a good proposal because if we came then you would certainly be our best company, colleague, critic and friend in whatever we would do, since we work in the same field and think similarly.

I am sending with this letter my most recent vitae and bibliography, which were prepared a few weeks ago at the request of a Canadian foundation which is more interested in me than I am in it, so I may have left out some pertinent points of more academic interest. If you feel so, perhaps you could present it to your dean and the selection committee , but it would not astonish me if you might find it wiser to suppress parts of it or it all and replace it with the summaries in the American Men and Women in Science or the Who's Who in America, because it is my experience on this continent that it sometimes scares people if you have had the good luck of getting more out of your efforts than the average. But this is, of course, up to you.

You certainly know that Doris has been treated here in the same way as most foreign outstanding women, so she has hardly even gotten peanuts for her great work and no direct recognition since we left Canada. I am not trying to produce any kind of a lever for the simple reason that I am against pressures of any kind, but if there could be a possibility to offer her some recognition even at the cost of a part of the salary otherwise intended as an offer to me, as was actually done in Montreal, this would please her and result in work that would certainly satisfy the institution. But if you find it unwise to mention this, just keep it to yourself, since we do not want to jeopardize a positive decision by being unreasonable, and we do not believe we have ever willingly been unreasonable or intolerant.

We are not planning to go west during our spring vacation, which is the last week of March, but could do so if requested. I was actually in the area for a few days in October to pick up a new Volvo which we had sent from Sweden, but did not have time to visit you and avoided even the telephone. But I enjoyed the short visit three semesters ago.

With the very best regards,

Sincerely,

Askell Löve,
473 Harvard Lane,
Boulder, Colorado 80303.
ph.: (303) - 494-9195.

UNIVERSITY OF COLORADO

BOULDER, COLORADO 80302

Department of Environmental,
Population and Organismic Biology

Boulder, March 14, 1973.

Dear John:

Many thanks for your frank letter. I expected frankness and honesty from you, that was the reason for that I contacted you rather than your dean, and what you say is what I could expect. However, it does not scare me or change my interests much, because I have long realized that many of the smaller universities in America suffer from the same lack of philosophy behind their biology offerings, and just the good smaller ones certainly are more likely to be a good ground for experiments that later might show the larger ones how to get out of the quagmire they have let other than biologists get them into, or sometimes biologists who had not observed where time had taken their field. My main interest in your region is, however, caused by the fact that our older daughter lives close by and my younger brother is in Napa, because we are a closeknit family that does not appreciate the splitting which Americans seem to like so much. I have full tenure here and a reasonable salary, so we do not need to change place, as you supposed, and the teaching load here is no greater than the average, I believe, and we have our own research facilities that we have moved with us in the past, except the computer terminal and keypunch which everywhere are rented. We are not afraid of working at a small institution, because that we have done before, and we do not need the prestige of a famous institution which smaller minds seek, because we have sufficient prestige ourselves. If the institution would like to use our experience and prestige and support us reasonably, I am sure that, together with you and some few others, we could soon improve your biology offerings immensely and start to attract students from various fields who need to have some background in these sciences whatever they do later in life. And if my ideas and philosophy became predominant, you and I would complement each other and never overlap.

Every institution in America is feeling a financial crunch, and as long as the business ideas of the present administration dominate, we can do little against the evolutionary fact pointed out already by Marx and Engels a century ago, that this system periodically goes down into a depression. This is so also in Colorado. I am not looking for an improvement in facilities for our work, because these would always be our own responsibility and come normally by themselves as our needs change, and I am not asking for a doubling of salary or any other "improvement" which some of our colleagues seem to dream of all the time, frequently at the cost of their colleagues at the same institution. But we have the family reasons mentioned above and then are more interested in the culture in California than the cultureless prairies, and I believe that I could add a firm academic philosophy that soon would show the students that it could be a good way towards a better scholarship and so affect the enrollment from other fields far beyond the wildest dreams of the optimists. No small university needs to remain small, and greatness comes from within.

I am also writing to your dean in the hope that he will think seriously about my proposal and allow us to look into it also critically by aid of his and others knowledge of the possibilities. I am not sending him a duplicate of the papers I sent to you, but will mention to him that these are with you, if you have not already handed them over to him. Since you do not think that you have any greater influence on him, I am not asking you to give him any opinion as to my suitability or qualifications, but if he should ask you, I know that you will do this as fairly as anybody could do. But if he should want some outside judgement, perhaps he could contact Harlap, who knows me well, and some others you could pick for him? From our points of view, based mainly on family connections but also on the fact that your department needs an improvement that I am sure I could institute, few places fit our dreams better, and if we could improve the dream of the institution, the result could be perfect. As I mentioned before, I am being looked at by one of the larger Canadian institutions which would easily double my salary if I went to there, but salary is not my main concern and has never been, and I have shown them only a lukewarm interest as a response to their evidently more serious one.

We are having one of our snowstorms here now, and it may grow bigger during the night and perhaps bury the roads and even houses as it did last night in Wyoming. It probably gave you some more rain before it went east towards us, but soon you will begin to complain about the lack of water and dream of the rains that come half a year later. This winter we have gotten more of the frosts than we find comfortable, but that is just what could be expected because the northlands where I was brought up clearly show that we are in the middle of a new cold period, a new step towards the glaciation!

With the very best regards and thanks for your frankness and honesty.

Yours sincerely,

UNIVERSITY OF COLORADO

BOULDER, COLORADO 80302

Department of Environmental,
Population and Organismic Biology

Boulder, March 14, 1973.

Dean John B. Drahmann,
College of Sciences,
University of Santa Clara,
Santa Clara, California 95053.

Dear Dean Drahmann:

When I read your advertisement for a chairman of your Biology Department in a recent number of Science, I could not avoid feeling that this might be an opportunity for us to get closer to our family (a daughter in Campbell and a brother in Napa), at the same time as it could give me the challenge of helping to build up a fine and modern biology department that could become a model for larger institutions, which still are characterized by biology taught on basis of the philosophy of the last century - or on no philosophy at all. Since I and my wife have built up our own library and other research facilities at home (except a computer terminal and keypunch), we are largely independent of such facilities at the institutions where we have been and so their size and research prestige do not effect us much. We are not people of the kind that ask first what an institution can do for us, except for a decent salary and certain basic facilities, whereas it has always been our interest to try to improve and give as much prestige as we could to the places where we have been - and I believe this we have done with some success. Therefore, it did not matter to us that your department is small and not particularly known for its scholars, because we believe that our minds could become its greatest asset - provided that the University is interested.

Since I know John Mooring slightly and realized that some of my fields are close to his, I wrote him a letter and sent him my curriculum vitae and bibliography and asked him to hand this over to you, in case he felt this would be a good idea. I am not sure how to interpret his reaction, but he sent me a letter in which he frankly stated that he thought the position were not worthy of my talents, described shortly the department, mentioned the financial crunch you are experiencing (as is our university and all others), told me what courses he teached (which I would not duplicate despite his fear), and then recommended that I should consider dealing directly with you, if for some reason I felt that this could be a "challenge". He ends his letter by saying that he thinks it is really unfortunate that we "have to consider moving", and that he believes that his institution would not be an improvement and financially might be risky, thus apparently misunderstanding my motif and automatically trying to protect us against our own ignorance, as honest people do.

As I mentioned at the beginning of this letter, our interest in your area is simply caused by our tight family ties. I have a tenured position here with a reasonable teaching load and facilities for research and graduate teaching and a decent salary. I was the chairman of this Department for a full period of four years during which we completely revamped our organization and program, and since that period was over I have been the chairman of one of the three divisions created through this reorganization and as such am on our executive committee which I also created. And I think I can say that we always have been able to get a good deal done, and that both the bibliography of myself and that of my wife (who is a Ph.D. and D.Sc. in the same fields as I am in) thoroughly demonstrate that we are among those who have the will and the energy to turn dreams into reality. I am sure that we could add considerably to the strength and scholarship of a small department, modernize its philosophy and push it towards excellence in a short time, especially if supported by a progressive dean and administration. Since I read between the lines of your advertisement and the letter from Dr. Mooring that such a change in biology in your University is one of your dreams, I sincerely hope that your reaction to my letter will be positive.

I trust that Dr. Mooring now has given you the set of vitae and bibliography and other informations that I sent to him. I have written to him today and asked him to do this, in case he has not done it before. Naturally, I could add whatever informations you would like to ask for to complement these formal ones whenever you so wish. Most of all, however, I hope you do not share the opinion of much too many of our American colleagues that smaller schools should be allowed to hire only smaller minds, because history shows that greatness is frequently fostered in the smallest of places which through their scholars become great. And I hope you also share the opinion I hold that nobody is too "great" for any position he wants and that nobody ever can be "over-qualified" for any job.

With the very best regards,

Yours sincerely,

Áskell Löve,
473 Harvard Lane,
Boulder, Colo. 80303.
ph.: (303)-494-9195. (home).

(AP Wirephoto)

Camden 4/6/66 - p. 3.

Askell Love Helps Prepare Guide To Ferns And Flowering Plants

A University of Colorado biologist, Prof. Askell Love, is a member of an 11-man committee embarking on a 15-year research venture to prepare a guide to the ferns and flowering plants of North America.

The guide will be called "Flora of North America" and is expected to consist of four volumes.

Groundwork for the guide was laid recently at a planning meeting at the Smithsonian Institution.

During the last 10 years Love has participated in a similar European project. In 1964 the first volume of a four-volume "Flora Europaea" was published. Love is a native of Iceland and received most of his college education in Sweden.

The proposed volumes on North American plants will include technical keys for the identification of all species and a brief diagnosis in botanical terms of the approximately 17,000 species of ferns and flowering plants in the United States, Canada and Greenland. The publication would be the most complete inventory of North American flora ever completed and would serve not only professional botanists but biologists and agriculturists in general.

The committee, appointed last August by the American Society of Plant Taxonomists, a professional society devoted the scientific study of plant classification and evolution, will seek the cooperation of plant specialists throughout North America. It will present its plans to the August meeting of the American Institute of Biological Sciences at the University of Maryland.

Chairman of the committee is Dr. Robert F. Thorne, taxonomist and curator of the Rancho Santa Ana Botanic Garden in Claremont, Calif. Other members represent the Smithsonian, Stanford University, the Universities of Michigan and North Carolina, Florida State and Harvard Universities, the National Museum of Canada, the Canadian Department of Agriculture and the National Polytechnic Institute in Mexico City.

Sight Screening
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CU Biologist Embarks on Plant Research Venture

BOULDER—A University of Colorado biologist, Prof. Askell Love, is a member of an 11-man committee embarking on a 15-year research venture to prepare a guide to the ferns and flowering plants of North America.

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At CU Garstang also serves as chairman of the astrophysics committee of the Department of Physics and Astrophysics, in which astronomers in JILA and in the High Altitude Observatory of the National Center for Atmospheric Research (NCAR) are now brought together to offer a single doctorate curriculum in astrophysics.

As chairman of JILA, Garstang will head a faculty of 24, of whom 10 are distinguished visiting fellows of JILA who come on one-year appointments from around the world. In addition 11 post-doctoral research associates and 33 graduate students are working at JILA on a variety of theoretical and experimental studies in the astrophysical sciences.

In JILA's three and one-half years of existence, its staff members have published approximately 180 research papers, Branscomb announced. In addition to their research, JILA faculty members carry their full share of classroom instruction, to which the NBS staff members of JILA have contributed 108 semester hours of teaching. The first doctorate awarded a graduate student in JILA was conferred last June. Two other students are expected to complete their doctorates next June, Branscomb said.

The institute will occupy a new building on the CU campus, which is scheduled for completion in July, 1966.

Dr. Allen V. Astin, Director of the National Bureau of Standards and CU's President Joseph R. Smiley met with the executive committee last week and received a report by Branscomb of JILA's activities during its first three and one-half years. These two men head the two institutions which collaborate to make up the Institute.

-30-

(END ADVANCE FOR RELEASE TO P.M.S FRIDAY, DEC. 17, 1965)

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THIS CLIPPING IS FROM

Colorado Springs

Gazette Telegraph

MAR 7 1968

11/1/65.

FLORA BOREALI AMERICANA PROJECT

by Askell Löve & W. A. Weber

A project to write a flora of North America in a style similar to the Flora Europaea Project, showing our present knowledge of the plants of this continent, based on previously published reports and the monographs of the North American Flora (a complement to the latter, not a replacement). Since it may take eight to ten years to complete the first volume, and perhaps about twenty years to complete the seven to eight volumes expected to be required if a plan similar to that of the Flora Europaea is followed, it is anticipated that a preliminary checklist ought to be published within the first five years of the project, to fill the need for modern information on the number of higher plants in North America and their nomenclature.

The creation of an organizing committee of not more than ten members ought to be the first step in this organization, immediately followed by the formation of a somewhat smaller editorial committee of botanists able to cooperate closely. The editorial committee consisting of an executive council of five members including the chairman and the secretary, and seven additional members, organizes the work on the Flora and edits it, every family being edited by one or more committee members. The descriptions and listing of genera and species will be done by specialists in various parts of the continent selected and solicited by this committee which then coordinated and edits the results. The organizing committee secures contacts with leading institutions and advises on financial and other matters of importance. It is headed by a president. The editorial committee also selects the small committee of advisory editors, the function of which is to help in various matters, but first in the selection of regional advisors -- one or two active

taxonomists from every state and province on the continent.

The first step in the organization of this project is to select members for its organizing and editorial committees. The second step is to select a place for its secretariat. We would recommend the University of Colorado, a middlesized university, centrally located in a climate perfect for herbarium preservation and provided with extensive computer facilities. It is recommended that the president of the organizing committee and if possible the chairman of the editorial committee be leading botanists from one of the main botanical institutions in America, which could co-sponsor the project with the university having the secretariat.

The third step will be to find support for the work of the Secretariat. It is anticipated that the university will furnish space and allow one of its professors, the secretary of the project, to spend half-time on this work. IBM facilities are available at a nominal charge. The project will, however, require a staff of three or four clerical assistants to handle typing, coding and other basic work along with contacts with the regional advisors; and to begin with, one, later probably three, young taxonomists to assist in the direct work on the Flora. It is suggested that the organizing committee be so selected that its members can exert considerable influence on plans for funding the project.

It will be necessary also to find funds for travel of the two basic committees, since they must be able to meet several times a year to discuss problems of various kinds. In addition, semi-annual or perhaps annual meetings of the regional advisors and the other committees will be necessary to discuss problems, solve questions, and to keep the interest high all over the country. Although these meetings could be held in connection with some national gatherings so that members might be supported

by their own institutions, some additional funds may be needed for conferences which are expected to be very beneficial for taxonomic interest in America and for the general work within this sizeable group.

The following are tentative suggestions for the memberships of the basic committees:

Organizing: William C. Steere, President, Reed C. Rollins, Richard S. Cowan, David D. Keck, A. E. Porsild, Rogers McVaugh, Ira L. Wiggins, Lincoln Constance, John M. Fogg, Jr., G. H. M. Lawrence, Lyman Benson.

Editorial: Arthur Cronquist, Chairman, C. Ritchie Bell, Bernard Boivin, Hugh Iltis, Askell Löve, Peter Raven, S. G. Shetler, L. H. Shinners, R. F. Thorne, E. G. Voss, W. A. Weber, Carroll Wood, S. W. Gould (technical advisor).

Executive: Arthur Cronquist, Chairman; Secretary; three members.

Advisory: R. A. Howard, Harlan Lewis, W. H. Wagner, G. B. Ownbey, A. R. Kruckeberg, J. Soper, B. L. Turner.

11/1 '65

THOUGHTS ON

COMPUTER METHODS IN TAXONOMY

By Askell Löve & W. A. Weber

1) Gould has shown that IBM methods are superb for the retrieval work taxonomy needs for its further development. He has, however, demonstrated the necessity of doing such work only under the able supervision of experienced taxonomists, who are fully aware of the importance of following nomenclatural rules. If judgment decisions cannot be avoided, an attempt must be made to accept the most advanced standard and concept for any taxon listed. If this is not done, then the risk of stagnation is even larger than it is without such advanced methods, because they can be as effective in hiding facts as they are in retrieving them.

2) Taxonomic botany, with its auxiliaries chorology, biosystematics and chemotaxonomy at least, has a great need for an International Documentation Center for Botany, at which the most modern methods are employed for the collection and retrieval of taxonomic data. It is pertinent that this center be formed in close cooperation with other international agencies. Since it is important that the center only uses machines that are available at least in major institutions, the original planning must be made on basis of detailed studies of such facilities elsewhere. Subcenters may be needed in some other regions, but the main center itself ought to be set up in the United States, preferably at a centrally located

university, in a climatically comfortable region where scientific institutions abound.

3) The personnel of such a data center must be technically skilled, but the nature of plant classification and its principles makes it extremely important that the work be governed by experienced, mature, not recent Ph.D. taxonomists from various approaches, supervised by a board of taxonomists of international reputation, from various countries. The international scope of the project could be emphasized through associating leading taxonomists with the work, in different ways, directly and indirectly.

4) The basic task of an International Documentation Center for Botany must be the collecting of all already published data related to taxonomy and classification, in the past as well as in the future. Fundamental to this will be the indexing of all the categories folowing the International Code, with synonyms, in such detail that it will be possible for others to detect errors in judgment or differences in points of view when synonyms are listed. Family names could be coded rapidly, and it ought not to be difficult to code all available generic names, whereas at the categories of species, subspecies and variety the coding of already published names may take years even in a well equipped and well staffed center.

5) It is important that several additional types of information be added to the basic list of categories at the Center; a) microcards of original descriptions available by reproduction to any taxonomist anywhere whenever needed, b) information on type specimens and

location of collections if possible connected with microcards in color, c) information on authors with biographical details and if possible, portraits, d) basic information on distribution giving countries, so that the entire flora of any region could be retrieved, e) information on world distribution on a selected grid, so maps of a certain exactness could easily be made; added to this could be more exact information making it possible to deal with detailed maps, although this would be much later and perhaps connected with the listing of material in individual herbaria only, f) biosystematic information beginning with chromosome numbers and if possible keyed to a microcard collection of papers in which this information has been published, g) chemotaxonomical information, h) room in the programming for future advances in taxonomic information.

6) Since a basic collection of information on the taxonomic categories combined with gross distribution data would make the compilation of checklists simple, the Center would soon make available a critical checklist of the North American flora, a very much needed project which, however, ought perhaps to be kept separate, although supported by the Center.

Conclusions

Such a Center would stimulate good floristic and monographic research by making available one central source whereby literature searches would be facilitated, duplication of effort reduced to a minimum and service to the field and its interrelated disciplines raised immeasurably.

At Smithsonian, May 23-24

BOTANISTS MEET TO DISCUSS
WORLD-WIDE FLORA PROJECT

SMITHSONIAN INSTITUTION
Washington, D.C. 20560
News Phone—(202) 381-5911

For Immediate Release

Secretary S. Dillon Ripley has announced that on May 23-24, the Smithsonian Institution will host a meeting of American and foreign botanists to discuss a project that "could become a major international undertaking in scientific cooperation and breathe new life into descriptive biology."

The botanists, all members of a specially appointed committee, will consider the feasibility and prospects of writing a comprehensive technical guide to the ferns and flowering plants of this continent, to be known as the Flora of North America.

The eleven-man committee was appointed last August by the American Society of Plant Taxonomists, a professional society devoted to the scientific study of plant classification and evolution. The chairman of the committee is Dr. Robert F. Thorne, Taxonomist and Curator, Rancho Santa Ana Botanic

(MORE)

Garden, Claremont, California, who is widely recognized as an authority on the evolution of flowering plants.

Local arrangements are being handled by the Smithsonian's representative on the committee, Stanwyn G. Shetler, Associate Curator of Flowering Plants, who specializes on arctic plants and has charge of the Institution's large collections of North American flowering plants (excluding Mexico).

Other U.S. committee members include Dr. Peter H. Raven, Associate Professor of Botany, Stanford University; Dr. Askell Love, Professor of Botany, University of Colorado; Dr. Edward G. Voss, Curator in Phanerogams, University of Michigan; Dr. Albert E. Radford, Professor of Botany, University of North Carolina; Dr. Robert K. Godfrey, Associate Chairman of Department of Botany, Florida State University; and Dr. Carroll E. Wood, Jr., Associate Curator, Arnold Arboretum, Harvard University.

Attending on behalf of Mexican botanists will be Dr. J. Rzedowski, Professor of Botany, Instituto Politechnico Nacional, Mexico City. Canadian botanists will be represented by Dr. A.E. Porsild, Chief Botanist, National Museum of Canada, Ottawa, and Dr. Roy L. Taylor, Chief, Taxonomy Unit, Canada Department of Agriculture, Ottawa.

To Stress Smithsonian's Role

The two days of talks will be opened Monday morning by welcoming remarks from Dr. Richard S. Cowan, Director of the Smithsonian's Museum of Natural History, and himself an internationally recognized authority of neotropical plants, and from Dr. William L. Stern, Chairman of the Museum's Department of Botany, and an outstanding authority on the anatomy of tropical trees and vines. They will stress the Smithsonian's historical role in the scientific study of North American plants.

The Department of Botany is known to the international botanical community as the U.S. National Herbarium, a name that alludes to the Department's vast collection of about 3 million dried plant specimens, representing nearly all the species known to science. The long-standing leadership of the U.S. National Herbarium in the field of taxonomic botany is recognized at home and abroad. Dr. Stern says, "It is fair to say that no major piece of taxonomic research on New World plants is undertaken anywhere in the world without recourse to the rich collections of the U.S. National Herbarium or the expertise of its 16 taxonomic specialists. The Smithsonian Institution is only living up to its continuing responsibility by taking the lead in sponsoring the consultations on the proposed Flora of North America."

(MORE)

"Flora" To Fill 4-6 Volumes

There are 15-20 thousand species of ferns and flowering plants in the United States, Canada, and Greenland, Shetler estimates, and the number is perhaps doubled if Mexico is added. The Flora would include technical "keys" for the identification of all species. In addition, each species would be diagnosed briefly in botanical terms, and a short statement on the distribution and habitat would be given. It is possible that distribution maps and illustrations would be published separately.

When completed, the Flora would fill 4-6 volumes and stand as a unique reference work on North American plants, serving not only professional botanists but biologists and agriculturists in general. It would also stand as a major conservation document because of being the most complete inventory of the North American flora ever completed.

The committee is realistic about the magnitude of the undertaking, Shetler explains. The Flora could not be written without the dedicated help and cooperation of plant specialists throughout North America, and the committee plans to take its case to a large forum of American taxonomists in August when the American Institute of Biological Sciences holds its annual meetings at the University of Maryland, College Park, Maryland. It is hoped that many European and Asian taxonomists will also take an active part, if the project is undertaken.

Must Fill "New World Gap"

Russian botanists completed their monumental Flora of the USSR in mid-1964, which occupies 30 volumes and covers about 18,000 species. By happy coincidence European botanists published the first volume of their projected 4-volume Flora Europaea the same year, some five years after work began in earnest, and the second volume will go to press this fall. When completed this work is expected to treat some 15,000 species.

The time has come, many American botanists believe, when the Americans must take seriously their obligation to fill the "New World gap" in the literature of north temperate and arctic plants. Furthermore, some stress, a flora project of the scale anticipated would yield large dividends to taxonomy in general by stimulating a new round of synthesis and a renewed interest in plants as whole organisms at a time when molecular biology is threatening to rob botany of its traditional vitality.

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