1979

University of Vermont student research on Vermont topics

Carolyn Perry

OCCASIONAL PAPER

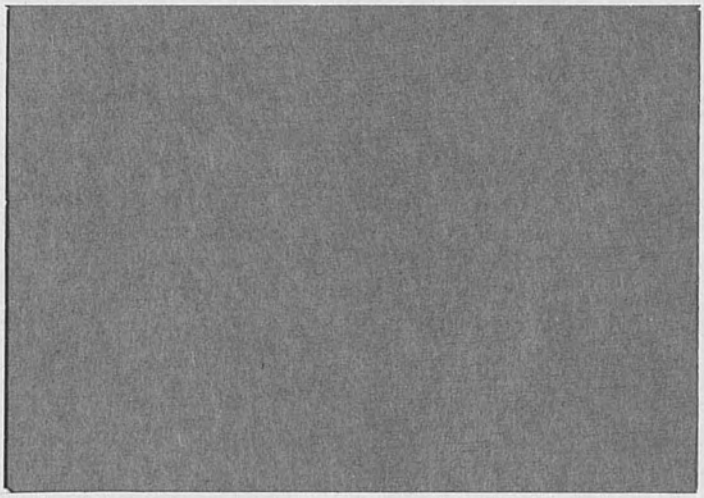
NUMBER 1

UNIVERSITY OF VERMONT
STUDENT RESEARCH ON VERMONT TOPICS

CAROLYN PERRY, EDITOR

CENTER FOR RESEARCH ON VERMONT

UNIVERSITY OF VERMONT BURLINGTON, VERMONT 05405



NUMBER 1

UNIVERSITY OF VERMONT
STUDENT RESEARCH ON VERMONT TOPICS

CAROLYN PERRY, EDITOR

The University of Vermont

CENTER FOR RESEARCH ON VERMONT
COLLEGE OF ARTS AND SCIENCES
BURLINGTON, VERMONT 05405
(802) 656-4389

In September 1976 the Center for Research on Vermont initiated a Research in Progress Seminar series. These seminars are conceived primarily as opportunities for researchers on Vermont topics to present their preliminary findings for critical review. We especially encourage attendance by people who either through participation or observation and study have special competencies in the subject under investigation. All sessions are free and open to the public.

Although not every seminar has followed this precise format, the presentations have invariably either profited from critical commentary or otherwise promoted additional research. In order to facilitate wider dissemination of these efforts the Center has elected to distribute selected presentations as "Occasional Papers."

We encourage readers to provide substantive comments. They may be addressed to either the author(s) or the Center for Research on Vermont. We also welcome suggestions for future Research in Progress Seminar topics.

Sincerely yours,

Samuel B. Hand, Director
Center for Research on Vermont
August 10, 1979

SBH/cgp

STUDENT RESEARCH ON VERMONT TOPICS

On April 17, 1979 the Center for Research on Vermont hosted a seminar on student research on Vermont Topics. Our principal objective was to stimulate greater awareness of the nature and extent of student research, and to celebrate its scholarly achievement. We also hoped to heighten awareness that some significant research results in other than print products.

The seminar was directly concerned with the University of Vermont College of Arts and Sciences research and included within that category was graduate work in Arts and Sciences Departments. Obviously not all departments have graduate programs nor do all departments have students researching in Vermont topics. From our initial survey it did become apparent, however, that students occasionally produce important or high quality research that does not result in publication or other forms of public display. To facilitate greater public awareness (and thus presumably make more accessible) the fruits of these labors, we have produced an inventory of student research conducted between 1975-1978 for public dissemination. We hope that it proves useful and that at some future date other Colleges within Vermont may provide similar inventories. The Center is anxious to cooperate in such projects.

A RESEARCH IN PROGRESS SEMINAR:

"UVM STUDENT RESEARCH IN VERMONT TOPICS"

MEMORIAL LOUNGE---WATERMAN

APRIL 17, 1979-----7:30 PM

MODERATOR:

Dean John G. Jewett
College of Arts and Sciences

PANELISTS:

Chester H. Liebs
Department of History
Director, Historic Preservation Program

Frederick E. Schmidt
Department of Sociology
Director, Vermont Community Data Bank

John C. Drake
Chairman
Department of Geology

This focus on student research is a step in efforts to identify and evaluate the large volume of unpublished works on Vermont. We also hope to identify areas for further research and to explore the relevance of publications. Information on Arts and Sciences College Departments not directly represented on the panel will also be available and observations from the audience will be solicited.

We encourage the participation of students in this program.

CENTER FOR RESEARCH ON VERMONT

UNIVERSITY OF VERMONT
BURLINGTON, VERMONT 05405

802/656-4389
COLLEGE OF ARTS & SCIENCES

A RESEARCH IN PROGRESS SEMINAR:

"UVM STUDENT RESEARCH IN VERMONT TOPICS"

MEMORIAL LOUNGE--WATERMAN

APRIL 17, 1979-----7:30 PM

MODERATOR:

Dean John G. Jewett
College of Arts and Sciences

PANELISTS:

Chester H. Liebs
Department of History
Director, Historic Preservation Program

Frederick E. Schmidt
Department of Sociology
Director, Vermont Community Data Bank

John C. Drake
Chairman
Department of Geology

This focus on student research is a step in efforts to identify and evaluate the large volume of unpublished works on Vermont. We also hope to identify areas for further research and to explore the relevance of publications. Information on Arts and Sciences College Departments not directly represented on the panel will also be available and observations from the audience will be solicited.

We encourage the participation of students in this program.

RESEARCH IN PROGRESS

OCTOBER 26

INTRODUCTORY REMARKS:

STUDENT RESEARCH ON VERMONT

PREPARED AND DELIVERED BY

FREDERICK E. SCHMIDT, SOCIOLOGY

Student research related to Vermont in the Sociology Department is best conceptualized in four overlapping categories:

(1) Research which emerges in a class context. This is usually of a general nature and Vermont provides the most immediate arena of interest.

   (a) Research on the class - used in class.
   (b) Class presentation or traditional term project or paper.

(2) Research projects which originate in class and continue in some unspecified post-class time period.

(3) Student-initiated projects which reflect an experience the student has had or is currently engaged in, e.g. field internships, University Year for Action, special studies, readings and research topics, honors work, masters and/or Ph.D. theses.

(4) Faculty-initiated projects with which students collaborate or are otherwise involved.

Over time, a single student researcher may well engage in all four types of endeavor. There is a natural "flow" which corresponds to the intellectual maturation process designed in our curriculum. However, it should be noted that the immediate goals and task orientation of each category of student research are clearly distinct. That is, the major emphasis of the class and course-based experience is upon student growth and the development of conceptual and research skills. As activity moves toward the fourth type, faculty-initiated projects, research goals emphasize the completion of a given task and learning is only a latent objective. In the field placement situation there are twin concerns: the student's development of experience useful in selecting a career and the generation of good will (on the part of the host organization) toward faculty involved, the academic

programs they represent and, of course, the image of the University at large.

Publication, or simply more formal presentation of student work on Vermont topics is, by and large, inappropriate. However, some of the material is quite good and there should be a vehicle for making it available on a more systematic basis. The better research pieces probably fall into two categories. One, descriptive pieces with an emphasis upon a certain dimension of Vermont life of interest to future researchers (primarily as background information, of historical interest, or to simply fill in the "holes" in the record). In this sense the student papers may serve as a primary data source for other researchers. The second type is the more analytical, data-oriented work which is of interest primarily to Vermonters.

In the Sociology Department it is difficult to assess the volume of quality student work on Vermont because so much of it lies undiscovered in the categories relating to classroom research. Given the pressures of teaching and course loads, these pieces tend not to be publicized beyond the classroom. There are, however, some publication avenues at this point which might be explored. The local press--especially the Vanguard and Cynic which are supportive of student work--and local audiences. Professors Garrison Nelson (Political Science) and Frederick Schmidt (Sociology) are taking "Vermont based student research" to the public through a series of meetings at the Church Street Center for Community Education this spring. Another vehicle at this level is the use of the student researcher in subsequent classes to present his/her materials. Ken Pierce's Vermont Abenaki Indian chronology (published by the Instructional Development Center, UVM) was presented by Ken in other university classes, local schools and day-care centers.

When considering materials of a quality to warrant greater visibility, we estimate that the Sociology Department has had experience with roughly fifty of these endeavors in the last five years. Recent examples of this work are described here, organized by the four categories identified on page one.

Type 1a: Research on the class, in the class. Several class exercises in our large introductory sociology course generate Vermont data. These exercises involve construction of tables reflecting differences in Vermont and out of state incomes, different attitudes of Vermont and out of state students toward a variety of issues, etc. These are utilized only as examples of data. Students assist in the final tallies and learn basic data aggregation and cross tabulation

techniques. However, these data do "build" over time, as former class profiles are compared with the present. These materials are not particularly scientific in their method of acquisition but they do serve to hold student interest.

A second example of this type of research is an assignment in the Community Organization and Development course which sends students to the field to observe and record town meeting phenomena. This is a carefully designed exercise which is conducted every year by Professor Schmidt and is coordinated with Professor Frank Bryan, Political Science, as part of Frank's ongoing study of Vermont town meetings.

Type 1b: Class Projects or Term Papers. Among the better Vermont related term projects done by Sociology students in recent years are Roger Simon's study of Vermont transportation systems, Holly O'Hanesian's study of health delivery in Vermont's rural areas; Kathy Tosh's work on the organization of rural mental health service in Vermont, Linda Swardlick's study of the organizational forms of "half-way" homes in Vermont, Marilyn Britt's work on the history of Vermont's cooperatives, Bob Rock's original study of migrant labor in Vermont, and Barbara Mair's work on Vermont's "Mom and Pop" stores.

Type 2: Projects originating in class and then continued, post-class. A number of these projects have found a home in the Vermont Community Data Bank Occasional Publication Series and include Marilyn Moses' systematic study of "Primary Health Care Facilities in Vermont," Toby Dayman's study of "Patterns of Incorporation in Vermont's Cities," Debbie Groff's study of Act-250 impact, and Carolyn Jablonski's study of "Dependency Ratios in Vermont Towns." Another example of this type of work is George Merriam's study of Vermont student drug use that was published and co-authored by Professors Gil McCann and Ronald Steffenhagen. Another study of this type, now in process, is represented by Ron Krupp and Kathy Tosh's survey of small, diverse farms in Vermont. Incidentally, solely on their own initiative, Krupp and Tosh have written an overview paper assessing the University's scholarly contribution to an understanding of Vermont's small farms. (Their selective review suggests that we haven't really contributed very much.)

Type 3: Student initiated projects. These take many forms and include special topics research, readings and research, honors theses, M.A., M.S. and Ph.D. theses, field internships, and, occasionally, work-study service and special student-obtained grant support for research. Both of the latter forms tend to be closely supervised, if not originally stimulated, by faculty.

This semester special topics research include work by Elizabeth Field on the organization of foster home care, Sue Colbert's study of local housing conditions (under Professor Gil McCann's direction), Sharon Frink's study of the Vermont hearing aid bill, Lori Micklin's study of the public defender's office, and Donna Lauren's focus on the Vermont Dental Care Program. Recent Vermont related honor's theses include Connie King's study of the ski industry in Vermont, Joe Fugere's study of Vermont's power structure focusing upon interlocks in banking, industry and recreation development, Carolyn Buttolph Smith's survey of Vermont women in state government, Todd Quinlan's work on the authoritarian attitudes of prison guards, Dan Quinlan's study of the University's Saga Food Services, and John Keough's focus on Vermont justice.

Although we do not have a graduate program in the department, many sociologists serve on Vermont related thesis work. Some of these include Diane Hernandez' study of Vermont Cooperatives, Jeff Sax's thesis on second homes in Vermont, John Simmon's work on Vermont's land posting, and Marcia Williams' dissertation on the history of community planning in Vermont.

Work-study opportunities afford faculty and students the luxury of pursuing research themes of common interest. Here we have a long and rich tradition including Dan Cohen and Martha Smyrski's work on Legal Aid Cases reflecting landlord tenant issues in Vermont (see Center for Research on Vermont's Conference Report, January, 1976), Mark Kolter's original study of housing conditions in Burlington and under the direction of Professor Laura Fishman, Craig Palm's current study on male prisoner perception of their wives' capacity to cope with incarceration and Judy Aldrich's work on Vermont women prisoners' adaptation to a correctional facility. Work-study also gives students and faculty the opportunity to coordinate research efforts with state agencies. Examples of this opportunity include Debbie Groff's original analysis of Act-250 recreation applications, Bill Gehr's placement with the State Planning Office to research agricultural issues and Josh Ezrin's coordinated efforts with the Vermont Community Data Bank and State Department of Agriculture in identifying standard sources of farm data in the state.

Type 4: Faculty initiated projects. Through a variety of funding and credit-granting mechanisms, we involve a number of students in faculty-initiated Vermont based research. One format for this work is provided in the context of the smaller University classes. In the past, entire courses have focused on a common data set related to Vermont for their semester's work. This work has led, for example, to the

study of Vermont's Farm Family Rehabilitation Program, published by the Agricultural Experiment Station. More typically, student interest in a given project is stimulated in the context of a course offered by a concerned professor. Subsequently, an arrangement for research support is made between interested students and faculty. Examples of this include Leif Jensen's study of 1,400 elderly Vermonters in a three county area utilizing data originally collected by the Champlain Valley Office on Aging and coordinated by Professor Fred Fengler, Cindy Turchan's analysis of volunteerism among Vermont's elderly, Lori Gilman's assessment of transportation needs of elderly Vermonters in rural areas, and Pat Murphy's data analysis of the backgrounds of Vermont's legislators.

A number of activities included in this category reflect a faculty member's liaison activities with off-campus groups which eventually involve our students as research staffers. In the past, for example, six sociology students undertook a joint research endeavor with the state's Mental Health Department which led to a detailed state report estimating the total mental health service client potential in the state. Five student researchers worked in the summer of 1977 with the Lake Champlain Basin Committee and contributed to the project report entitled "Public Perceptions of Environmental Issues in the Lake Champlain Basin." As a consequence of this and similar work, our students have been responsible for a number of joint faculty/student panel reports reflecting Vermont research at conferences held at the University of Vermont, Plattsburgh State, The Miner Center in Chazy, New York and Annual Professional Meetings of Rural Sociologists at Cornell University and the University of Wisconsin.

In conclusion, several observations serve to complete this exploration of student-based Vermont research in Sociology. Competent research in the social sciences requires the mastering of an arduous process, initiated by learning how to conceptualize and concluded by the perfection of a final report and polished presentation of findings as they relate to ongoing scholarship in the areas of specific research endeavor. This is not an easy process and it is a rare undergraduate student who can master the entire process in a brief four years at UVM--remember that the typical graduate instruction focusing upon mastery of the research process takes from four to six years--much less a single undergraduate semester. Quality student research on Vermont, for the most part, demonstrates mastery of only several steps in the research process. Even those steps are not necessarily grasped in sequence.

Frankly, any student work able to withstand both professional and community review must reflect an inordinate

amount of faculty input--a scarce commodity in any institution of higher education. For these reasons, there is little undergraduate work of immediate publishable quality. However, this does not suggest that there is little undergraduate work of utility or material inappropriate for special audiences.

It is important to note here that there is a further, less obvious but no less critical, outcome from Vermont based undergraduate research. Simply, in the experience of the Sociology Department, we find that involvement in Vermont research has afforded a large number of our students the opportunity to become familiar with research processes, the potential scholarly and policy impact of research, and an awareness of both organizational and human problems in the state. This experience enables students to make successful application for jobs and further study which strongly contribute to their final career selection and development. Probably of far greater impact than their actual research output is the fact that the Vermont environment provides a most attractive base for research. It is here that many of our students first develop an appetite for researching human and natural resource problems. This attractiveness and the significant student response to it is of greater importance in the long run than any outstanding publication "track" record.

ANTHROPOLOGY

WILLIAM E. MITCHELL, CHAIRMAN

As the only facility in the state with the personnel and resources to conduct archaeological research, the Department of Anthropology has long functioned as a repository for artifact collections and other relevant data. Undergraduate work has been directed toward utilizing these resources, most commonly in the form of readings-research projects and papers. Archaeological projects conducted in the laboratory or field incorporate artifacts from 8,500 B.C. through the nineteenth century. Topics indicative of students' wide-ranging interests include the interrelationships of Paleoindian occupation and post-glacial Lake Champlain history, an assessment of prehistoric site locations in the Lower Winooski River Watershed, ceramic analyses of several Woodland sites in Vermont, lithic analysis of the Winooski Site, flotation and analysis of soils from two Chittenden County sites, crafts of Vermont Indians, medicinal plants used by Vermont Indians, and an analysis of clay tobacco pipes recovered from Fort Dummer. One paper--"Ceramic Description and Analysis of Pottery from the Winooski Site," by James Petersen--will be published in monograph form by the Vermont Archaeological Society in the Fall of 1979. Petersen also wrote "Prehistoric Pottery in Vermont" which summarized ceramic studies from past projects and appeared in a 1979 issue of the VAS Newsletter (27:1-4).

In addition to course-related activities, students are continuously involved in cultural resource management projects in archaeology, such as conducting surveys of areas to assess the potential impact that specific construction might have on prehistoric or historic resources. These are conducted primarily under the supervision of the Department's Contract Archaeologist and are funded by federal, state and private agencies. However, their reports, written in conjunction with the principal investigator, are not generally available to the public.

CATANIA, VIVIAN. Flotation and Analysis of the Ewing and Winooski Soils. 1978.

COWAN, FRANK L. Prehistoric Sites in the Lower Winooski Watershed: An Assessment of Site Location. 1977.

PAQUIN, CHARLES. Crafts of Vermont Indians. 1976.

PETERSEN, JAMES B. Ceramic Description and Analysis of Pottery from the Winooski Site. 1977.

Prehistoric Pottery of the Ewing Site: Analysis of 140 Vessels. 1977.

Aboriginal Pottery in the Connecticut Valley: A Preliminary Analysis of Samples from Six Sites. 1978.

STVAN, E. REED. A Study of the Prehistoric Ceramics of the Ewing Site. 1978.

TWITCHELL, TESS. Analysis of the Fort Dummer Tobacco Pipes. 1977.

VOGELMANN, JAMES. Medicinal Plants of Vermont Indians. 1977.

VOGELMANN, TOM. Post-Glacial Lake History and Paleolithic Man in the Champlain Valley. 1972.

COMMUNICATION

DHARAM P. YADAV, CHAIRMAN

BENNETT, YUDIS ELKA. Preserving America's Heritage: The Filmmaker as Historian. Film: "The Old Red Mill." 1975.

As the nineteenth century drew to a close, life in the towns and villages of New England was changing. Bustling communities were becoming noticeably quieter as small farms and businesses folded under the pressures of a new, industrial era. The Old Red Mill, a thirteen-minute, 16 mm documentary film, tells the story of a flour mill in northern Vermont trying to stay alive during this period of transition. Although The Old Red Mill was initially created to document the history of the mill and to promote support for it, the film and accompanying paper now serve a broader purpose: to explain and illustrate some of the ways in which film can be used to further the goals of historic preservation.

CURRAN, ANN M. BISSONNETTE. "In Robinson's Vermont" (a film). 1975.

Vermont in the last century had its prosperous farms, flourishing cities, and industries that spent the state's ancient resources of wood and stone. But tucked away in the Green Mountains, whole villages lived as simply as in pioneer days. In the late 19th century, a native son wrote a series of nostalgic stories about one of these villages. In them and in his sketches and histories, Rowland Robinson captured in detail the flavor of Yankee and French-Canadian speech, the work and entertainment of country people, the seasonal changes of woods and wildlife--the feeling of what life was like then.

In Robinson's Vermont introduced the man and his work in a short color film using old photos, Robinson's own drawings, and live action scenes with people from Addison County, Vermont in costume. The Robinson family home, now kept as a museum, and northern Vermont itself, provide the setting. The sound track blends narration with "Robinson's voice" and several Yankee dialect characters. One of Vermont's outstanding fiddlers is heard on the sound track.

Finally, the film looks beyond the author's day to the present, suggesting through sound and image the persistence of a Vermont he thought was vanishing. A modern farmer gathers maple sap from a horse-drawn sled in woods his tractor cannot reach. The camera scans a bleak winter field as words written a century ago describe the sight. In Robinson's Vermont finds much that has endured.

JANONE, DEBORAH HICKS. A Survey of Community Leaders, Designed to Measure the Success of Community Programming Broadcast by WCAX-TV Since 1974. 1977.

The purpose of this thesis was to measure community leader opinions of how well WCAX-TV had dealt with ten problems identified in a 1974 ascertainment report.

Four hypotheses were advanced to deal with the problem. The first hypothesis predicted that there would be an over-all positive rating by all community leaders with regard to how well WCAX-TV had dealt with community problems. Analysis of the data indicated that the results were in the expected direction, partially supporting Hypothesis I with respect to three of the ten problems.

Hypothesis II predicted that there would be a significant difference between the ratings of community leaders in specific leader categories with regard to how well WCAX-TV had dealt with community problems. Analysis of the data indicated that the results were in the expected direction, partially supporting Hypothesis II with respect to four of the ten problems.

Hypothesis III predicted that there would be a significant difference between community leader categories with regard to how often they watch community service programming. Analysis of the data indicated that the results were in the expected direction with respect to three of the programs.

Hypothesis IV predicted that there would be a significant relationship between the ratings of community leaders and how often they watch specific programs. Analysis of the data indicated that the results were in the expected direction, partially supporting Hypothesis IV.

Data were collected, tabulated, and analyzed using both statistical and narrative techniques. Ratings were

based on a seven-point attitude scale, and a four-point scale indicating frequency of viewing. In-depth interviews were also conducted with six community leaders whose ratings of station performance were above and below the average ratings.

Further research could examine why the ratings indicate an average handling of ascertained problems. Further research could also examine the effectiveness of the community ascertainment process in providing local programming consistent with community needs as perceived by community leaders. Finally, further research could examine the attitude of the licensee toward the community ascertainment process as a vehicle for providing relevant community programming.

JANUARY, KATHERINE CLARK. A Case Study in Officer/Inmate Communication at Windsor Prison. 1975.

A case study of six male subjects, three officers and three inmates, at a maximum security prison in Windsor, Vermont, was undertaken to determine if self and other-image would be significantly affected by participation in a communication workshop.

Attitude change was measured by the Q-sort technique. The Q-sort was administered just before the workshop, just after the workshop, and two weeks later.

Data were analyzed by means of the Wilcoxon test and the Mann-Whitney test.

The findings demonstrate that some significant changes did occur after the workshop in self and other-image, particularly in the areas of hostility, power, and ego strength; more changes were evidenced in other-image than in self-image. However, these changes were not sustained, a fact which seems to be due to the role rigidity and social climate of the prison environment. The present study provides a basis for the execution of further communication workshops, and for further research about the effects of environment on human perception and communication.

MOORE, MILLYN DANA. Programming Practices and Ascertainment of Community Needs in Vermont Radio Broadcasting: An Analysis of Licensing Applications. 1976.

The purpose of this thesis was to examine the programming

and ascertainment of community needs functions of radio broadcasting licensees in Vermont in light of the regulatory principles of localness and public service.

Hypotheses focused on programming differences between three types of stations (commercial AM, commercial FM, non-commercial FM), homogeneity in programming within each type, dependency on entertainment programming, response to ascertainment of community needs requirements, and the impact of ascertainment on radio broadcast programming.

Information was gathered from radio station license renewal applications filed by Vermont licensees for license terms ending in 1972 and 1975. Data were collected, tabulated and analyzed using both statistical and narrative techniques.

Methods used for analysis of programming data were based on techniques used by former FCC Commissioners Kenneth Cox and Nicholas Johnson in several studies of broadcast programming conducted in the late 1960's. This thesis added a series of statistical tests to examine the programming data more effectively. Methods used in analysis of ascertainment of community needs data were modeled after methods used in studies conducted by Thomas F. Baldwin and Stuart H. Surlin.

It was found that Vermont radio broadcast content is dominated by entertainment. The data suggested a trend toward increasing entertainment content over time. Significant differences between the three station types were found in the dominant entertainment program category. But the data for three other program categories were inconclusive. Stations representing each type were found to be largely homogeneous in relative proportions of programming in the four categories studied. Few stations deviated significantly from the group norm. The data suggested a trend toward increased homogeneity (i.e., less deviance from the group norm) in many cases. Methods used in ascertainment of community needs were frequently not properly reported by the renewal applicants and those which were reported were often deficient. Still, in comparison with other earlier ascertainment research data, Vermont stations appeared to be significantly ahead of the national norm.

The failure of many licensees to report properly their ascertainment methods and results hampered the investigation of the impact of ascertainment on programming. The limited data available implied that ascertainment has had a positive effect on broadcast programming.

RAE, KARIN. "Six Forest" (a film). 1977.

With today's emphasis on community care of the mentally ill, Six Forest offers a timely look at Vermont's efforts to prepare State Hospital patients for the demands of society outside the hospital. Six Forest is the name of the transitional unit at the Vermont State Hospital in Waterbury.

Using the cinema verite technique, the film focuses on nine patients in their hospital environment who learn to interact and work together on simple group activities. Three of these patients are followed into their community care homes and we see what it is like for them to be out of the hospital and in a community setting.

Through interaction between hospital staff, patients, and Dr. George Brooks, Hospital Superintendent, Six Forest explores the social stigma attached to the State Hospital and its patients. In a very personal sense, it shows that people can no longer be simply "locked up" and forgotten. Patients today are recognized for their human and legal rights to return to the community environment as soon as they are ready.

Six Forest does not make a statement for or against de-institutionalization. Rather, it leaves the judgment on the success of the program up to the individual viewer.

Recommended for viewing by both mental health professionals and the general public, Six Forest is available on loan (free of charge in Vermont) or for purchase. Discussion guides may also be obtained for use in conjunction with the film.

COMMUNICATION DISORDERS

MARY S. WILSON, CHAIRWOMAN

MAGNAN, ELAINE REED. Incidence of Hearing Loss in a Sixty-Five and Over Population in Homes for the Aged in Vermont. 1977.

This study was designed to investigate the incidence of hearing loss in persons age 65 and over in homes for the aged in Vermont. Incidence figures were projected on the basis of a representative statewide sampling. Based on a literature review, it was estimated that greater than 25 percent of the residents would have a significant hearing loss.

The representative sample of 88 subjects in seven homes for the aged (10% of the population) were given a hearing screening test. Those who failed the screening test were given a pure tone threshold test and the Rinne Tuning Fork Test. All subjects responded to a hearing case history questionnaire.

Those subjects having a significant hearing loss of poorer than 25 dB using a three-frequency better ear average totaled 55 subjects. This was 62.5 percent of the 88 subjects tested. Eighty-one subjects, or 92 percent, failed the hearing screening test. Of the 81 subjects given the Rinne Tuning Fork Test, seven had a negative response, suggesting a conductive component to their hearing loss.

Based on the results from this representative sample, the incidence of significant hearing impairment in the age 65 and over population in homes for the aged in Vermont is projected to be 62.5 percent.

McCRAW, JOYLYNN FRANCES. A Study of Consumer Satisfaction with the Care Received at the Rehabilitation Medicine Unit of the Medical Center Hospital of Vermont. 1975.

The purpose of this study was to investigate patient and family assessment of the Patient Education Program employed at the Rehabilitation Medicine Unit of the Medical Center Hospital of Vermont.

A questionnaire-interview method of investigation was

used in order to investigate the following questions:

1) Are the procedures and reforms of the Patient Education Program being carried out?

2) Are the patients satisfied with the program procedures and information provided?

3) Is there a difference in responses to the questionnaire between non-communication impaired patients and communication impaired patients?

Twelve patients who had participated in the Patient Education Program for a minimum of two weeks were divided into two equal, age-matched groups. Group I, the control group, included patients suffering from illnesses and disorders which did not involve communication impairments. Group II, the experimental group, was comprised of patients suffering from illnesses which did result in communication impairments.

The results of the study revealed the following information in terms of the three questions:

1) The only area of the Patient Education Program which was not being carried out concerned follow-up information on the patient's health problem and subsequent care and treatment.

2) Generally, patients and family members in both groups were satisfied with the procedures employed at the Rehabilitation Medicine Unit with the exception of the self-medication program.

3) Differences between Group I, no communication impairments, and Group II, communication impaired, were found regarding participation in the self-medication program and in the amount of information family members received concerning the patient's health problem and related areas.

ECONOMICS

LUBOMIR A. DELLIN, CHAIRMAN

GEIER, FRANK JOSEPH, III. The Effects of Urban Renewal on Burlington's Central Business District. 1975.

This study is the combined effort of the Burlington Planning Commission who did the Burlington Economic Survey and myself who tried to make some sense out of what is happening in Burlington, Vermont.

The question that was foremost in my mind was the effect Urban Renewal would have on the Burlington Central Business District. There has also been an attempt to relate other effects of the Urban Renewal on the Burlington residents.

The net result has been a thesis that relates a historical perspective of the Burlington citizens, the impact of an Urban Renewal program that has been going on now for some nineteen years, a look at the Burlington CBD, and of retail space outside the Burlington core; concluding that Burlington is at a turning point in its existence. What action or non-action the City takes will have repercussions for many, many years ahead.

ENGLISH

JAMES R. HOWE, CHAIRMAN

Studies on Vermont topics undertaken by students have appeared in the form of Master theses and as data for the Archives of Folklore and Oral History. A recent thesis dealt with author Daniel Thompson.

In English 165, Introduction to Folklore, undergraduates are required to discover local folklore traditions, document them, and prepare a record of them for the Archives of Folklore and Oral History. Since 1976, when the Archives was begun, more than 200 reports have been submitted, and thus far about 150 of them have been placed in it. Information in the Archives is in the form of tape-recorded interviews, transcriptions of interviews, photographs, and first-hand descriptions of folk traditions. The topics--reflecting the genres of folklore--include studies in onomastics, paremiology, material culture, traditional music, folk beliefs, local craftsmen, and local legend and history.

In addition, students often elect for their second research project to write about some facet of Vermont folklore. Outstanding papers have been preserved, but those which emphasize analysis over field-collecting are preserved apart from the Archives. About thirty papers have been saved.

Two papers written by undergraduates have been published in the journal of the Green Mountain Folklore Society.

REED, LAUREL HANSEN. Daniel Pierce Thompson: Regional Writer. 1977.

This study examines selected works of Daniel Pierce Thompson to establish his place in the body of American regional writing. It cites the structure of his narratives which uses fact blended with fiction to re-create scenes from the history of early Vermont and Maine. The examination of Thompson's characters shows his talent in re-creating historical figures and in his construction of a unique type of character, the common man of this region, usually a woodsman. His limitations in plotting and character delineation are also noted. The final part of this study deals with nature as setting and theme and Thompson's considerable descriptive powers in presenting his scenes. The elements of Vermont history,

setting, and characters faithfully portrayed in the Thompson novels make them worthy of a place in American regional literature.

GEOGRAPHY

CANUTE VANDERMEER, CHAIRMAN

Geographical studies on Vermont made by students in this department have appeared primarily in the form of Master's theses. Students are counseled to undertake research on problems relating to the state unless compelling reasons make alternative locations feasible and desirable. Since inception of the graduate program in 1969, 22 geography theses of variable quality have been filed with the Graduate College. Of these, 15 relate to Vermont, most of them in the human (rather than physical) branch of the field, a bias currently reflected in the whole discipline. Economic geography topics have been the focus of theses on the St. Johnsbury and Lamoille Railroad; textile industry in Vermont; road network and regional interaction in Vermont; recreational travel and resource utilization in Vermont. Theses in cultural and/or political geography are on the Vermont-Quebec boundary; a Vermont cartobibliography; village green in northern Vermont; changing rural land use in Washington County; and the port of Burlington. A stronger physical geography component is found in theses on the Vermont deer kill; wetland vegetation mapping of the Champlain Basin; physical geography of the Vermont ski industry; remote sensing of lake flooding; environmental and land use in the Rutland watershed. Half of the completed theses have taken an historical perspective to the subject which reflects faculty orientations and access to useful materials. One thesis (Cobb) has been published in full as Nos. 3 and 4, Volume 39 (1971) of Vermont History. Parts of three theses (Meyer, Wood and Orr) have been included in No. 2 (1975) of the Vermont Geographer. Part of another (Lates) has appeared as an article in No. 2, Volume 44 (1976) of Vermont History. Presently six graduate students are at various stages on Vermont-related theses.

Undergraduate work relating to Vermont takes the form of term papers or reports in courses. A good many term papers in 200-level courses in the past ten years have used Vermont as a setting or laboratory. Most of these papers do not warrant permanent cataloguing, but a file of the outstanding papers might be started. One senior honors paper has chosen Vermont for its areal framework. Internship programs with agencies in the area can be expected to yield reports of value. Several undergraduate students are presently engaged in work on the comprehensive plan for the town of Shelburne and one graduate student is producing computer maps of several variables in that town. Likely directions of future research

include the water budget of Lake Champlain, the urban housing market in Burlington, farm fragmentation in Vermont, spatial contraction of farming in the state, and landscape evolution in cases where land use has changed.

BARLOW, JAMES NORMAN. The St. Johnsbury and Lamoille County Railroad in Northern Vermont: A Geographical Analysis of the Route-To-Region Relationship. 1975.

The importance of the St. Johnsbury and Lamoille County Railroad, a small line which serves a large rural region in northern Vermont, has been questioned, especially by state legislators in Montpelier ever since the State of Vermont purchased the railroad in 1973. Critics, however, usually tend to concentrate solely on operating costs and fail to consider other factors which affect the impact the STJ&LC has in this route-to-region relationship. Despite its auspicious history and its position today as a minor link in the regional rail network, the STJ&LC plays a significant supportive role in the region's economy. For a number of the line's customers, this railroad represents the only viable link to major transportation routes, and, further, to distant markets and sources of supply. Without the STJ&LC, a number of economic activities would be adversely affected if transportation costs increased and some might be forced to close. Associated repercussions, such as unemployment, would result, and the region would become less attractive for future development if not adequately served by more than just truck transport.

ELLIS, ROY CARLTON. Recreational Travel and Resource Utilization Within Vermont: A Quantitative and Policy Oriented Analysis. 1978.

The phenomenal growth in recreational pursuits within the United States has social, economic, and geographical implications. This study deals with one aspect of the broad recreation field: travel to and utilization of Vermont's state park camping resources by Vermont citizens. Since many other recreational activities are provided at state parks, the study may also be considered to relate to the total outdoor recreational experience.

The study has three specific goals:

(1) to identify generalized patterns of recreational travel and resource utilization within Vermont, and to determine the reasons for and implications of the way

these patterns are organized or structured in geographic space;

(2) to identify key factors affecting recreational travel and resource utilization within Vermont, and to evaluate the effectiveness of several analytical modelling approaches to behavior in the recreation system; and

(3) to identify the justification for public provision of outdoor recreation resources, and to evaluate preceding analytical results in terms of equity of resource provision and implications for public recreation policy in Vermont.

In general, the study increases understanding of the recreational camping phenomenon within Vermont, and should allow for more effective management of valuable public resources.

Analysis indicates that recreational travel and resource utilization is highly clustered in geographic space, and that patterns summarizing the complex assortment of individual trips tend to be more developed in the northern areas of the state. It is also found that population, the number of camping sites available at a park, and the presence of water-related facilities play the most significant role in explaining travel behavior. Variations in accessibility are generally not significant as access overall is quite good. In addition, the local Vermont traveler is found to be more attracted to the natural resource qualities of a park; the non-local traveler to the more developed facilities. A single equation regression model of resource utilization is developed, and, with the derived estimates of parameters, may be useful for visitation prediction during a recreational expansion program.

The goal within a public state recreation system must be to maintain an equitable provision of resources to state citizens. Overall, the analytical results indicate that "recreational equity" within the Vermont system is high, although four areas of the state are identified where the equity of recreational resource provision to the local citizen is comparatively low. The protection and enhancement of natural resources and the maintenance of quality, community-oriented facilities are indicated as primary goals in future recreational resource development.

HOWLAND, WILLIAM G. An Application of Multispectral Aerial Photography to Wetland Vegetation Mapping. 1976.

Analytical techniques have been developed for use with false color, conventional color and multi-band high altitude aerial photography as a data base for vegetation mapping in a variety of wetland types in the Shelburne Pond, Vermont study area. Color and false color photography were examined at a scale of 1:52,000, and multi-band photography at 1:104,000. Photography was taken from a NASA RB-57 platform at 26,000 feet on September 20, 1972.

Through conventional photo interpretation techniques, including observation with a Bausch & Lomb Zoom 240 stereoscope, signature areas were outlined on a base map.

A densitometric evaluation of spectral signatures of KODAK types 2443 and SO-397 films in the nine inch format was conducted with a Macbeth TD-504 macro-densitometer. Transmission density at 140 sites, each typical of a homogeneous signature area were tabulated for blue, green, red, and visual spectral regions.

Multi-band photographs were enlarged and assembled as duplicate positive transparencies for combination in a multi-spectral viewer (Spectral Data Corp.). Three band color enhancement techniques were used to highlight signature areas.

Field work was conducted throughout the 1975 growing season. Dominant canopy vegetation was recorded for each signature area, and a classification of canopy vegetation associations was established for each type of photography.

Canopy vegetation association maps were prepared at a scale of 1:6250 for each wetland in the study area from each type of photography.

A key to the identification of wetland plant associations in the study area was constructed, based on signature characteristics recorded from visual interpretation.

Film types were evaluated in terms of their applicability to wetland vegetation mapping, based on three parameters: association discrimination, resolution of interpretation, and ease of interpretation. Color infrared photography was found superior to conventional color and multi-band photography for application to vegetation mapping in wetlands. Conventional color photography was found superior to multi-band photography which was at a much smaller scale, but with a few exceptions.

Color infrared photography is recommended for future wetland vegetation mapping efforts.

MEYER, JOHN BIDDLE. The Village Green Ensemble in Northern Vermont. 1975.

The village green in Northern Vermont is a feature of the cultural landscape which has antecedents in southern New England, the Isle of Britain, and continental Europe. Of the 229 nucleated communities in the ten counties that comprise the study area, 60 contain village greens as part of their settlement layout. Contemporary and historical data for each of the 60 village greens were derived from (1) printed sources and/or manuscript documents in town records; (2) detailed field mapping of their size, shape, and facilities, as well as the type and extent of peripheral land uses around the green; and (3) direct observation of contemporary function and form.

Greens originated from the lots of a town's first meetinghouse, courthouse squares, school or academy commons, or military training grounds. At first crude clearings littered with logs or stumps, early greens quickly became places of primacy as utilitarian focal points for public celebrations, punishment, or parades. During the middle of the nineteenth century the commons began to develop into landscaped greenswards which is their physiognomy today. The green has become a backdrop for monuments and expressions of patriotism, a recreational site including a picnic area and a summer music stage. In its form the village green is basically a rectangular-shaped configuration averaging between one and two acres. The peripheral land uses help define the character of the green and should be considered as part of it: the average frontage for all greens is 42% devoted to residential use; 17% to commercial use; 16% to public use; and 9% to church use.

Aside from its actual character the village green has a strong image of attractiveness to late twentieth-century urban Americans, and its future as an open space in these communities seems assured.

MEYER, PETER BARDILL. Changing Rural Land Use in Eleven Towns in Washington County, Vermont. 1977.

Eleven towns in Washington County, Vermont (Woodbury, Cabot, Marshfield, Calais, Worcester, Middlesex,

Moretown, Duxbury, Fayston, Waitsfield and Warren) were chosen for the study of changing rural land use in rural Vermont during the past thirty years. The major questions addressed by this paper are:

(1) At what rate is agriculture declining in this part of Vermont, and is there a correlation between agricultural decline and the suitability of the soils to support agriculture?

(2) What types of land uses are replacing agricultural uses?

(3) Is new development taking place on prime agricultural land, or is new development occurring in areas with soils capable of supporting this development?

Analysis of the data gathered in this paper reveals that agriculture has declined dramatically in the past thirty years in this area. There seems to be a correlation between agricultural decline and the suitability of the soils to support agriculture. Farm numbers are generally declining faster in areas with poor agricultural soils than in areas with better soils unless there are strong suburban or recreational pressures on the land.

As agriculture has declined in this area, many of these communities have been converted from farming towns to rural residential or rural recreational areas. Reflecting this change has been the tremendous increase in the numbers of rural non-farm residences (including mobile homes), winterized vacation homes, and camps; and the dramatic decline in the numbers of abandoned structures.

The study reveals that the answer to the first part of the third question is that high potential agricultural land is being developed faster than the lower potential lands in areas that have no major attractive feature for development. In areas with a strong attraction for development such as lakes or ponds, ski areas, or large areas of undeveloped forest lands, most new development seems to be concentrated near the attraction generally on land that has little agricultural potential.

The answer to the second part of the third question is similar to the first. Development seems to be occurring as rapidly in areas without any site limitations as in areas with these limitations in the towns that have no major attractive feature. If there is such an attraction, development is occurring more rapidly in areas with some site limitations because it can be economically feasible to overcome any limitation that may exist.

OSBORNE, RONALD ALFRED. The Validity of Using a Visual Classification System in Analyzing Housing Quality in Bellows Falls, Vermont. 1977.

This study explores the validity of using a method of visual analysis for determining residential housing quality in Bellows Falls, Vermont. The hypothesis that guides the investigation is expressed as follows: A correlation of the results of the visual housing quality analysis of Bellows Falls, and the cost approach appraisal data from the listers' files, will demonstrate that the visual classification system is a valid method of determining the general quality of housing.

A residence classification sheet was developed to visually categorize the quality of housing. Village housing was analyzed, and five quality classifications were developed. A map of Bellows Falls indicating housing structure and its quality by visual analysis was the result of the field survey.

The listers' assessment files provided appraisal information for each housing structure, and it was determined that house value, land value, total value, and per family value, or total value divided by the number of families living in the structure, were the best indicators of actual housing quality available from the appraisal cards.

An areal comparison of the visual quality and appraisal value results for each village dwelling seemed appropriate and the village was divided into squares of equal area. The structures within each square were considered as one unit. The information on house value, land value, per family value, and visual quality was averaged for each square. Five quality categories were developed for the appraisal data so that the appraisal and visual system could be compared. Four maps were made from this data: average house value, average land value, average per family value, and average visual quality. Shades of color were used to indicate the five quality categories. Each map was then analyzed for quality correlation.

The comparison of visual and appraisal results led the writer to conclude that the Average Per Family Value was the most accurate indicator of housing quality. Average House Value by itself was not an accurate measure of quality because it did not include land value and it did not distinguish between the values of single and multi-family dwellings. Average Land Value was not an accurate measure of quality because it did not include house

value. Average Per Family Value includes both the land value and house value and also makes the distinction between the value of single and multi-family dwellings. This distinction allows the comparison of the two types of structures to be made.

It was finally concluded that the comparison of visual and appraisal findings in Bellows Falls did suggest that a visual exterior survey was a valid means of determining the general quality of village housing.

PELTON, JAMES O'NEILL. The Application of Remote Sensing Techniques to Surveys of Lake Champlain Flooding. 1975.

On April 7, 1973, the water level of Lake Champlain reached its highest stage of the year, resulting in extensive flooding of low-land areas near the lake. The areal extent of the flooding and the nature of the land use affected by the flooding have been investigated through the use of imagery from the Earth Resources Technology Satellite (ERTS-1). The analysis of the imagery indicates that ERTS can provide accurate estimates of the total acreage flooded from a high lake stage. The importance of ERTS as a tool for regional surveys on the effect of the fluctuating lake stage has been increased in the light of the recent decision to renew investigations of the possible regulation of the water level of Lake Champlain by the Province of Quebec, Canada.

STEPONAITIS, LOUIS WILLIAM, JR. The Textile Industry in Vermont, 1770-1973: Its Development, Diffusion and Decline. 1976.

The development of Vermont's textile industry can be traced back to just prior to the Revolution. As the population grew, textile operations developed to meet purely local demands. By the 1820's, many local mills had a surplus of products that were bartered or sold outside their immediate areas. Conditions including ample supplies of native wool, good mill sites and adequate amounts of soft water gave further impetus for growth. This growth would continue until just after World War I. With few exceptions, the industry began a decline that continues.

GEOLOGY

JOHN C. DRAKE, CHAIRMAN

Geological research in Vermont constitutes an integral and essential part of our program. As indicated in our graduate catalogue, we encourage students to select thesis topics "in accord with faculty interests" which are and will continue to be focused upon Vermont topics. The state provides a superb natural laboratory for teaching and research on problems ranging from plate tectonics to water resources, which is reflected by the list of M.S. thesis titles. Some areas are primarily of interest to the geological community, whereas others are more generally applicable to land use management, mineral resources evaluation, water resources evaluation, environmental studies, etc. Because of the nature of investigations undertaken by graduates and undergraduates, a major limiting factor is financial resources. It has become increasingly necessary to link student research to funded faculty projects, which we feel significantly reduces the diversity of potential activity. Only by developing university financial support for student research can this problem be alleviated. While it may not be feasible to provide total support in all cases, the general lack of support that currently exists is detrimental to the development of individual student initiative and creativity. Another limitation in both M.S. research and Senior honors is time, the lack of which necessarily limits the scope of problems investigated. For this reason, several of the research programs in Geology involving seniors and M.S. students are ongoing, which integrate previous student research with work in progress (e.g., Hunt's Lake Champlain studies; Doolan and Stanley's bedrock mapping program). In this way, the student research efforts become part of a continuously evolving data base.

We estimate that 60%-70% of the graduate student research eventually is made available to the professional community in a variety of forms: (a) papers presented at professional meetings; (b) incorporation into faculty publications; (c) incorporation into project completion reports; (d) incorporation into research proposals; (e) incorporation into subsequent Ph.D. research; (f) presentation at Vermont Geological Society Annual Meeting for student research with subsequent abstract circulation to all members of the Vermont Geological Society.

To enhance the interdisciplinary impact of student

research at U.V.M., the Center for Research on Vermont should publish a yearly bulletin containing titles and abstracts of M.S. and Senior honors theses. In this way, the university community could be made aware of ongoing research activities. In addition, the university should assume responsibility for binding two copies of all senior honors theses, one for departmental libraries and one for Bailey. By doing so, these research results would be conveniently available to all interested parties.

ACOMB, TIMOTHY JAMES. A Watershed Analysis: The Mendon Brook Basin, Mendon, Vermont. 1978.

The water resources of the Mendon Brook watershed are an important asset to both the basin's residents and the water users of Rutland, Vermont. A greater awareness of the watershed's complex geohydrologic network is needed to provide a more comprehensive land use policy.

Mendon Brook basin is located in the metamorphic terrain of the Green Mountains. The Pleistocene glacial soils in the basic include a clay-rich basal till (Till C), overlain by two sandy supra-glacial tills (Tills A and B), and numerous kame and kettle deposits. The hydrologic parameters of the unconsolidated deposits were tested to determine hydraulic conductivity (range 0-121 inches/hour), specific yield (range 0-25 percent), and percolation rate (0-360 inches/hour).

Annual precipitation in the basin averages 40 inches. Of this total, 16 inches is removed by evapotranspiration and 24 inches (1.02 billion cubic feet) leaves by surface and subsurface discharge. Baseflow levels in Mendon Brook declined from 40 cfs in May to 15 cfs in August.

Groundwater recharge totaled over 600 million cubic feet for the 1973-1974 water year, with groundwater outflow estimated at 2 million cubic feet.

Interflow, both shallow and deep, accounts for over 50 percent of the runoff during heavy rainfalls. Deep interflow in the southern Rooney-Sawyer valley is an important source of baseflow to Mendon Brook.

AGNEW, PAUL CAMERON. Reinterpretation of the Hinesburg Thrust in Northwest Vermont. 1978.

The Georgia Mountain area consists of a sequence of deformed Cambrian (?) through Upper Cambrian phyllites,

quartzites, dolostones and shales located along the trace of the Hinesburg thrust in the Milton area of northwestern Vermont.

Recent work in the Colchester Pond area (Rosencrantz, 1975) has defined a sequence of continuous and conformable members within the Lower Cambrian Cheshire and Dunham Formations. The areal distribution of the members has provided a basis for mapping the Hinesburg thrust, and delineating a large number of slivers associated with several thrust slices.

Detailed geologic mapping in the Georgia Mountain region has shown the Hinesburg thrust to consist of a zone of fault slices, which are spatially associated with mylonite zones, isoclinal folds (F1), and lithic slivers. The fault slices are cut by a weakly developed, westerly dipping cleavage (S2), and are deformed on a regional scale by open folds (F3). All features are truncated by two northward trending, high angle faults which control the map pattern in the southwestern part of the area.

Previous regional interpretations have suggested that the Hinesburg thrust represents a gravity slice, emplaced in Middle Ordovician time (Zen, 1972), which is correlated with the Taconic klippe to the south and gravity emplaced nappes in southern Quebec.

The mylonitic fabric associated with the Hinesburg thrust zone and a southwesterly younging of slivers in the map area, suggest the thrust climbed a series of fault steps as a result of horizontal compression. This indicates that Zen's interpretation of the Hinesburg thrust as a gravity slice is incorrect with the style of deformation associated with the Hinesburg thrust zone suggesting it is correlatable with Late Ordovician plunger-type thrusts to the north, in Quebec, and to the south, in the Taconic region.

AUBREY, WILLIAM MAYNARD, III. The Structure and Stratigraphy of the Northern Ridges of Camel's Hump Mountain, Camel's Hump Quadrangle, North Central Vermont. 1978.

The northern ridges of Camel's Hump Mountain offer an excellent cross-sectional view of the heart of the Green Mountains because they flank the Winooski River Valley which cuts deeply through major structures.

Detailed mapping in this area subdivides the Underhill Formation into four lithologic members: an albite

gneiss, two rusty graphitic quartz-muscovite schist, and a resistant grey quartz-muscovite-chlorite schist. These units are lithologically homogeneous and are continuous over the area mapped.

The members of the Underhill in this study are correlated with those delineated by Eiben (1976) in the Stimson Mountain area located immediately to the north. A map of the two areas is compiled (Plate I) and the structure is interpreted in view of both areas as a whole.

The lithologic members trend north-south. They dip 20°W in the western part of the area and flatten to the east. Three generations of folds are distinguished: an early east-west generation (F_1) and two northerly trending generations (F_2 and F_3). The arch of the lithologic members parallels the axis of the Axial anticline (F_3) of the Green Mountain anticlinorium and is probably due to F_3 folding. An older north-northwest trending fold generation (F_2) deforms the relatively flat lying lithologic members into steeply west dipping isoclinal folds like an accordion. Minor structures and several large structures are folded by F_2 pointing to an even older fold generation (F_1).

There is repetition of lithologies and a strong symmetry across the resistant grey quartz-muscovite-chlorite schist in the stratigraphic section of the area. Future detailed mapping of the surrounding region may reveal that the trend of the lithologic members is parallel to the axial plane of a large scale early recumbent fold (F_1) cored by the resistant grey quartz-muscovite-chlorite schist.

The dominant schistosity of the area is not bedding schistosity. It is the axial plane schistosity of the second generation folds (S_2). Bedding represented by changes in lithologies is brought locally into subparallelism to this schistosity by F_2 isoclinal folds which fold the interfaces between the lithologic members. However, there is a high angle between the dip of the dominant schistosity (48°W) and the dip of the trend of the lithologic units. Mistaking the F_2 axial plane schistosity for bedding has caused many workers in the Green Mountains in the past to misinterpret F_2 folds as lenses or the interfingers of facies equivalents.

BADGER, ROBERT LEWIS. Stratigraphy and Origin of the Umbrella Hill Conglomerate. 1977.

The Umbrella Hill Conglomerate of north central Vermont

is a unit of rounded quartz pebbles and angular phyllitic fragments within a phyllitic matrix. Previously interpreted as a basal conglomerate of the Missisquoi Formation, it is recognized on the basis of detailed mapping as a series of submarine debris flow deposits of Early to Middle Ordovician age. Three interbedded facies are recognized:

(1) coarse quartz pebble framework conglomerate,
(2) quartz pebble and phyllitic fragment conglomerate, and
(3) non-conglomeratic sandy phyllite.

Contact with the underlying black and grey phyllites and grey schists of the Stowe Formation is abrupt where the basal Umbrella Hill is a coarse quartz pebble framework conglomerate, and gradational by interlayering over a few meters where the basal Umbrella Hill is predominantly a phyllite. Contact with the overlying Moretown and Cram Hill Members of the Missisquoi Formation is generally gradational by interlayering over one or more meters. Obvious source rocks for phyllitic fragments incorporated from underlying semi-consolidated material during debris flow are not exposed in Cambrian-Ordovician rocks to the west suggesting that debris may have flowed from the east. Coarse pebble deposits overlying thick beds of mud along a moderate to high energy shoreline were probably set into downslope motion by tectonic instability. Initial turbulence of flow eroded significant quantities of mud from the underlying semi-consolidated deposits. At a break in slope, change in flow regime to one dominated by viscous forces allowed the preservation of some of the semi-consolidated fragments over distances of perhaps several kilometers. A debris flow interpretation is compatible with abrupt uplift and instability of the continental margin during the Taconic Orogeny. A Taconic structural event reoriented the phyllitic fragments slightly. Two Acadian structural events have affected the rocks, but have not further rotated the clasts. Taconic metamorphism has probably been obscured by Acadian metamorphism which has altered the southern part of the conglomerate to the biotite-chloritoid zone, and the northern half to the garnet-biotite-chlorite zone.

BECKER, LAURENCE ROBERT. A Survey of a Sandy Beach and Bay, Appletree Bay, Lake Champlain, Vermont. 1978.

Based upon beach and nearshore bottom topography studies at Leddy Beach and Appletree Bay, Lake Champain, Vermont.

little evidence for bar migration was revealed. The fact that profile changes were confined to accumulation or erosion over the length of the profile suggests that longshore drift is predominant in Appletree Bay. The Leddy Beach profiles show two distinct beach slopes, a high water beach of approximately 5.3° and a low water beach of about 1.1°. The high water beach can be viewed as a transition zone between bank and nearshore topography. During this study year most profile changes were independent of lake level changes even though this year can be considered a high water year. Profile changes and field observations reveal that longshore drift may be occurring in the form of sand waves in Appletree Bay.

Models for sediment movement in the bay are proposed. Sediments move to the northwest during the summer southerly wind period, and return in the late fall and spring under the influence of west-northwesterly winds. Even though little change in the nearshore configuration occurred over a 35-year period, a greater than 35-year movement to the northwestern end of the bay is deduced from the accumulation of material in that area. The eroding banks in Appletree Bay are shown to be the source of the nearshore sandy bottom. If recent bank erosion has been caused by artificial protection of the bay, then the banks are in disequilibrium whereas the beach and nearshore area display equilibrium characteristics. However, the possibility exists that the bank, beach, and nearshore area are all in disequilibrium due to recent bank erosion.

Protecting the banks artificially probably would reduce bank erosion locally, but may lead to partial erosion of the high water beach and undermining of the intended protective structures. In addition, erosion may increase on unprotected banks due to the disruption of the natural equilibrium. Proposed lake level drop would preserve the high water beach and probably reduce bank erosion. However, dropping lake level is not a guarantee of decreasing erosion because of geomorphic thresholds and complex response of geomorphic systems. If a seasonal longshore equilibrium is operating in Appletree Bay, there is little danger of the beach and nearshore area eroding. Even if the nearshore area is in disequilibrium material will accumulate, not erode, therefore, the construction of groins and breakwaters should be avoided in Appletree Bay, because they can disrupt the natural system.

BOTTNER, ROGER WIDMAN. Wallrock Alteration Associated with the Mesozoic Pyrrhotite Mineralization at Cuttingsville, Vermont. 1978.

Within the limestones, schists, and gneisses of the Precambrian Mount Holly complex at Cuttingsville, Vermont, an alkaline igneous stock intruded during late Cretaceous time. Pyrrhotite mineralization, primarily as replacement deposits in the limestone was associated with the intrusion of the stock. Temperatures in the surrounding country rock during the time of ore mineralization have been calculated by means of a pyrrhotite geothermometer to range from 560° C. at 235 meters from the intrusion to 400° C. at 686 meters. These values are substantiated by calculations based upon the thermal diffusion model of Jaeger (1957).

Microscopic and chemical analysis of 3 core samples of limestone and schist wallrock adjacent to pyrrhotite ore veins has found alteration of the limestone wallrock to be the result of a cation exchange process between the ore solution and the host rock. Calcite has been altered to ankerite, and sericite altered to biotite and chlorite.

Comparison of the results of this study with the works of others suggests that the replacement deposit was formed from a slightly basic (pH = 8-9) bisulfide solution, which upon oxidation, and therefore deposition of the pyrrhotite, dissolved and altered the calcite to ankerite while simultaneously altering the sericite to biotite and chlorite.

CORNEILLE, EDWIN STANLEY, JR. Bostonite and Lamprophyre Dikes from the Champlain Valley, Vermont. 1975.

Lower to Upper Cretaceous dikes of the Central Champlain Valley, Vermont are represented by: 42 bostonites, 46 monchiquites, 13 camptonites, and 1 ouachitite. Most dikes are intruded along a preferred east-west fracture system. Bostonite dikes are confined to the area south of Burlington, Vermont. Monchiquites are more abundant in the northern half of the field area and camptonites are distributed more evenly. Radiometric age dates and field relations support a younger age for bostonite than lamprophyre dikes.

The petrology of these dikes is similar to those described in the Monteregian Hills, Quebec and are summarized as follows: (1) Bostonites are porphyritic with phenocrysts of anorthoclase and display a subtrachytic flow structure

of groundmass anorthoclase laths; (2) Lamprophyres are subdivided into monchiquites, camptonites, and a single ouachitite. In hand section they are typically aphanitic; in thin section microphenocrysts of clinopyroxene (augite), to a lesser extent calcic amphibole (kaersutite), and olivine pseudomorphs are present in camptonites and monchiquites. Titanbiotite is the dominant phenocryst in ouachitite. The groundmass is characterized by andesine in the camptonites, analcite and glassy material in monchiquites and ouachitite. Ouachitite is an olivine-free biotite-rich monchiquite. All lamprophyres contain abundant amygdules.

Five different pecularities in the mode of emplacement of dikes is recognized and apparently controlled by the inherent mechanical properties of the country rocks.

All types of Champlain Valley dikes contain abundant xenoliths. The petrography of these xenoliths suggest that the Precambrian basement underlying the Champlain Valley is composed predominantly of biotite and garnet schist, quartzites, and pink and red felsite. Anorthosite and gabbro are extremely rare and are reported as single xenoliths in a bostonite and camptonite dike respectively.

On the basis of this and other studies in the Champlain Valley and Monteregian Hills, it is concluded that the magma sources for lamprophyres are derived deep within the crust or mantle whereas the bostonites are differentiates of syenitic intrusions represented in the Champlain Valley area by the Barber Hill stock, Charlotte, Vermont, and Cannon Point laccolith, New York and in the Monteregian Hills by numerous larger alkaline plutons.

DETENBECK, JEANNE CAROL. Stress and Strain Analysis of Dolomite and Quartz Lamellae, Colchester Pond, West-Central Vermont. 1977.

This paper discusses the stress states imposed on multimineralic rocks using dynamic analysis of dolomite and quartz as a check on each other in order to measure paleostresses in the Hinesburg synclinorium.

Groshong's least squares fit strain gage technique for calculating a strain tensor from twinned calcite was successfully adapted for use with the dolomite data. The method not only provides an independent check on the stress directions calculated from dynamic analysis of dolomite and quartz, but it also determines the absolute

values of the strain imposed on the samples during deformation. The quartz principal stress axes agree with the dolomite in only one of the two samples studied. Dolomite stress and strain analyses determine principal axes of the same orientation for each sample and the directions are compatible with geologic structures in the sampled area. Furthermore, the two types of analysis, when combined, relate a complex pattern of deformation events. The discrepancy in the quartz data interpretations suggests that quartz dynamic analysis has a limited usefulness in multiply deformed terranes because it is not always able to predict a dominating stress when several are present. Methods are not yet developed for resolving superposed stresses from quartz fabrics. The dynamic analysis of dolomite shows the evolution of one state of stress whose axes vary in value, and the Groshong method is able to resolve superposed stresses which are orthogonally related, making the two methods complementary in pertofabric analysis.

EIBEN, DAVID BRUCE. Stratigraphy and Structure of the Stimson Mountain Area, Camel's Hump Quadrangle, North Central Vermont. 1976.

Detailed mapping of the early Cambrian Underhill Formation exposed along the Green Mountain anticline in the vicinity of Bolton, Vermont reveals five lithic members. These include a greenstone, rusty albite schist, magnetite schist, graphite schist and albite granulite, from oldest to youngest. The unmetamorphosed equivalents were mainly feldspar-rich shales and graywackes deposited in a reducing, moderately deep basin with restricted circulation. The lower half of the section is correlated westward to an adjacent area (Thresher, 1971).

Three fold generations are preserved (F_1, F_2, F_3), the first two involved extensive folding and intense schistosity development; the third is evidenced by local folding and slip cleavage development. F_1 folds are overturned to the east, but fold rotation senses relate to an anticline to the west. The F_2 and F_3 fold rotations correlate with two distinct phases of deformation and formation of the Green Mountain anticline to the east. The folding mechanism for F_1 is hypothesized to have been slip folding and it is shown the F_2 folds began as flexural and ended with some slip along the S_2 schistosity, F_3 folds developed from flexural mechanisms. F_1 folds are correlated to other areas only in that minor folds are present there, while F_2 folds can be widely correlated, in particular to a regional F_2 fold proposed

by Thompson (1974) in a detailed study to the north, the trace of which may extend south to Bolton. F_3 folds can be well correlated with regional and minor folds of similar age along the Green Mountain anticline.

GILLESPIE, RICHARD PIERCE. Structure and Stratigraphy Along the Hinesburg Thrust, Hinesburg, Vermont. 1976.

Detailed investigation of the bedrock geology in the Hinesburg area of central western Vermont indicates evidence for two episodes of major Paleozoic deformation and a minor episode occurring during the Mesozoic. First generation isoclinal folding produced a closely spaced axial plane cleavage during early Taconic time concomitant with development of the Hinesburg thrust. The thrust in the Hinesburg area likely developed as a nappe with a series of thrust slivers generated below the main mass of Lower Cambrian rocks. Metamorphism to the biotite grade appears to have occurred before emplacement of the thrust as rocks below the thrust are in the chlorite zone whereas those above are in the biotite zone.

Subsequent deformation during either the Acadian orogeny (345-360 m.y.) or a late Taconic event (440-460 m.y.) refolded the rocks about north and northeast plunging axes with development of a slip cleavage in some areas and a slaty cleavage in others. The thrust surface was also folded at this time.

Tensional stresses during the Mesozoic produced a normal fault, the Monkton fault, extending from Monkton to Colchester, Vermont transecting rocks of the synclinorium as well as the Hinesburg thrust. Kinking in phyllites adjacent to the fault occurred with development of this fault. Minor igneous dikes were also intruded into the rocks of the Hinesburg synclinorium during the Mesozoic. Evidence for three generations of fold development is present both above and below the Hinesburg thrust.

KOLAR, BRIAN WILLIAM. Physical and Chemical Characteristics of Selected Metabasites in West-Central Vermont. 1975.

The Lincoln Mountain and Camels Hump quadrangles in west-central Vermont contain several small metabasite units of Cambrian(?) to Early Cambrian age which represents the westernmost extent of eugeosynclinal volcanism in this part of the northern Appalachians.

Structural data collected from the Cambrian age metabasites supports two distinct major deformational episodes in west-central Vermont. Small and large scale drag folds (F_1) and an associated axial plane cleavage (S_1) are probably products of a "Taconic" phase of deformation while the dominant regional schistocity (S_2) appears to be a product of the Middle Devonian Acadian orogeny.

Seven whole-rock chemical analyses of the metabasties suggest that the volcanics most closely resemble "ocean tholeiite" and "alkali" basalts. The data suggests that at least a few rock samples have been post-magmatically altered.

Electron probe analyses of subcalcic hornblendes, epidotes, chlorites and biotites are presented and discussed in terms of mutual cationic substitutions with ascending metamorphic grade. Recalculations of the hornblende analyses assuming "minimum" and "maximum" values or Fe_2O_3 show that the A-site is typically 1/3 or 1/2 full and they deviate from the ideal two-component composition tremolite-ferroactinolite primarily utilizing the tschermakite $Al^{VI}Al^{IV}$ $(Mg,Fe^{+2})^{VI}Si^{IV}$, glaucophane $Na^{M4}Al^{VI}$ $Ca^{M4}(Mg,Fe^{+2})^{VI}$ and edenite $Na^{A}Al^{IV}$ $^{A}Si^{IV}$ substitutions.

Petrographic observations and variations in phase compatibilities with ascending metamorphic grade form the basis for the definition of 3 mineralogical subzones within the basic schists.

MARCOTTE, RONALD ALVERY. A Paleostress Analysis of a Major Fold in the Southern Part of the Hinesburg Synclinorium. 1975.

In the southern part of the Hinesburg synclinorium, the Monkton Quartzite has been deformed into north-trending folds. Based on an analysis of cleavage, fractures, and quartz deformation lamellae from 12 study locations, it is possible to determine a structural and stress history of the Hinesburg-Monkton area.

The folds cover an area of approximately 16 square miles. The maximum width of the folds is about 12,000 feet. The anticlinal ridges once reached a height of about 2,300 feet above the present ground surface, and the tops of the synclinal troughs are no more than 300 feet below the surface. The average thickness of the Monkton Quartzite beds is probably less than 350 feet.

The folds and an associated cleavage were probably formed during the Taconic orogeny of Middle Ordovician age.

The fractures that cut the Monkton Quartzite define a very persistent pattern throughout the Hinesburg-Monkton area. The undisturbed geometry of the fracture fabric suggests that the fractures represent a post-fold event coeval perhaps with the first generation fractures and wrench faults that deformed the Champlain thrust during the Acadian orogeny of Middle to Late Devonian age.

At least three types of quartz deformation lamellae fabrics are recognized, based on the orientation of the quartz microfabric axes: (1) east-west quartz fabrics, (2) northeast-southwest quartz fabrics, and (3) vertical quartz fabrics.

The quartz deformation lamellae are most likely all post-fold features, and represent two or possibly three generations of deformation of an Acadian and/or later orogeny. The quartz deformation lamellae cannot all be correlated with a single event, but they can all be associated with local structural features. The east-west quartz microfabric most likely developed with, if not slightly before, the first generation fractures and wrench faults. The northeast-southwest and vertical quartz microfabrics probably developed with the strike-slip and vertical movements on the Monkton fault, which may be coeval with the second generation fractures and wrench faults, and are recognized as some of the latest structural events that disturbed the Hinesburg synclinorium.

McHONE, JAMES GREGORY. Petrochemistry and Genesis of Champlain Valley Dike Rocks. 1975.

Samples from twenty-six lamprophyre and trachyte dikes of the Lake Champlain Valley and adjacent areas of New York and Vermont were collected for petrographic study and chemical analysis. The dikes are most abundant as swarms in the central and north-central areas of the Champlain Valley although similar lamprophyres are found throughout Vermont and the eastern Adirondacks. Diabase dikes are numerous in the Adirondacks and fairly rare in Vermont, but in both cases appear to be unrelated to the lamprophyres. A new K-Ar date of 130 $\pm$ 6 m.y. was obtained for a central Vermont lamprophyre dike which agrees with the accepted Early Cretaceous age of the Champlain swarms. The dikes predominately

fill an east-west fracture set, indicating a north-south horizontal tension at the time.

The rock types range from ultramafic monchiquites through camptonites to silicic trachytes. The major lamprophyre minerals are zoned salite and kaersutite phenocrysts in a panidiomorphic porphyritic texture where either analcime (in the monchiquites) or plagioclase (in the camptonites) predominate in the groundmass along with second-generation mafics and opaques. The trachytes consist almost solely of sodic feldspars with only minor biotite or amphibole in a trachytic or bostonitic texture. Many lamprophyres contain amygdules filled with carbonates and zeolites, and ocelli which are blebs or zones of felsic minerals. New and published chemical data are combined and show typically lamprophyric compositions rich in alkalies, volatiles, and mafic elements in a continuous undersaturated to saturated differentiation trend. A large compositional gap between the lamprophyres and trachytes complicates theories of a common origin, but it is postulated that the dikes are crystal-liquid fractionations of a parent alkali olivine basalt magma which may be represented by the rare diabasic dikes of the swarm. Immiscible liquid separations are evident as the ocelli but were not a major differentiation mechanism.

The close similarities with dikes of the Monteregian petrographic province of Quebec are pointed out, and it is suggested that all these rocks are part of a larger alkalic intrusive province which includes many plutons and hypabyssal rocks in the Adirondacks, Vermont and New Hampshire as well as Quebec. It is also suggested that at least some of the diabase dikes of the Adirondacks and central Vermont are of Precambrian and Triassic ages respectively. Future studies of Mesozoic igneous events in northeastern North America may better reveal the role of Vermont intrusives in a time-space transgression of magmatism.

PIERATTI, DENISE DORIS. The Origin and Tectonic Significance of the Tibbet Hill Metavolcanics, Northwestern Vermont. 1976.

Recent work on compositional variations of basic rocks from different tectonic settings (ocean ridge, ocean island, island arc, continental) suggests that chemical differences exist between compressional and extensional volcanics. Various petrologic models for basaltic rocks are applied in an evaluation of the tectonic setting and

origin of the Tibbet Hill volcanic member of the Pinnacle Formation, and compared with recent plate tectonic models of Bird and Dewey (1970), Cady (1969), and Rodgers (1972) proposed for New England.

The Tibbet Hill volcanics are composed of calcareous, feldspathic and amphibolitic greenstones, schists and phyllites. The amphibolitic and feldspathic greenstones are recrystallized lava flows. The schists and phyllites are volcanics intermixed with detrital sediments. The calcareous greenstones may be tuffaceous deposits. The unit has been metamorphosed to the biotite zone of the greenschist facies.

Major element variation of 37 samples of greenstones and associated rock types suggest protoliths ranging in composition from basaltic to andesitic. The volcanics plot as oceanic tholeiites on FMA and iron-magnesium diagrams. The metabasalts correspond in composition to typical mid-ocean ridge basalts. Discrimination on a TiO_2-K_2O-P_2O_5 diagram supports an aceanic affinity.

Selected trace elements (Nb, Ti, Y, Zr) are also used to distinguish between magma types. Calculated Y/Nb ratios suggest the petrologic character of the Tibbet Hill ranges from tholeiite to slightly alkalic. Plots of Ti-Zr-Y and Ti-Zr indicated an ocean floor affinity.

On the basis of chemical data, it is concluded the Tibbet Hill metavolcanics were erupted in a tensional zone, perhaps best correlated with the initial rifting of the proto-Atlantic during the Eocambrian. This origin is consistent with the interpretation of the surrounding rocks (Pinnacle Formation) as originating in a graben formed during the initial stage of rupture of the North American/African continent.

SLAVIN, ERIC JAN. Process and Mechanism of Stream Bank Failures Along Brown's River, Vermont. 1977.

The failure of stream bank materials may occur by several processes. Along the banks of Brown's River, Vermont, only one process is operating, slab failure. This involves the mass movement of river bank materials along a planar surface of failure.

The physical properties of the bank alluvium, shear strength, unit weight, water content, and grain size, were measured at 14 sites along the river. Measurements were made in point bar, channel fill, and

floodplain deposits. In all cases, shear strength decreased with depth, corresponding to changes in the composition and water content of the bank materials. Layers of coarse grained sediments with low shear strength occur within all banks. Because of their stratigraphic positions, their susceptibility to erosion, and low shear strengths, these layers may be the "critical" layers influencing the entire bank stability.

Multiple step-wise linear regression analyses were performed on shear strength, dry unit weight, water content, and overburden pressure data collected from the testing sites. No single variable consistently proved to be the most important factor responsible for variations in the shear strength. This was true not only between the different testing sites, but also for different excavations within individual testing sites. The effects of different environmental factors which vary from site to site influences the degree to which the variables influence the shear strength. Much of the variance in the shear strength was left unexplained by the analyses, indicating that there are other variables involved, but not included in the tests. Many of these other variables are nonparametric and thus would be difficult to include in the statistical analyses.

Failure of stream bank materials along Brown's River is a sequential process. Deepening of the channel results in an oversteepening of the banks, followed by subaqueous failure of the lower bank materials. If the upper bank has become sufficiently weakened by the subaqueous failure, it too may fail. Large blocks of the upper bank materials, held together by a vegetative root mat, are brought down by the failures. These blocks mantle the banks and bed of the river after the failure has occurred. Being highly resistant to erosion, the blocks tend to remain in the channel for several years. They tend to act as a natural riprap and may protect the banks from subsequent erosion.

Cross-sectional profiles of the channel were taken periodically throughout the study and showed that the major bank failures occurred during or after the spring floods. Subsequent flooding or other high flow conditions at other times of the year do not tend to result in failures. Thus, it appears that the bank failure process proceeds according to the theory of geomorphic thresholds rather than a process-response model of landform evolution.

TURNER, PRESTON JOHN. Seismic Reflection Survey in Lake

Champlain. 1978.

Seismic reflection surveys utilizing a Bolt model 600 air-gun acoustical source have achieved complete penetration of lake sediments and till(?) in the basins of Lake Champlain. The bedrock basin is deepest near Split Rock Point (1,000 feet /304.8m/ below sea level), and shallower in the northeast and northwest arms of the lake (300 feet /91.4m/ below sea level). Sediment accumulation is greatest in the basins including Split Rock, Juniper, Colchester, and Burlington basins. Maximum average accumulation rates for basins is approximately 54 feet (16.5m) of sediment per 1,000 years.

Fault traces, which can be traced into the lake from mapped faults on the adjacent shorelines, indicate no positive evidence of recent post-glacial displacements as evidenced by lack of overlying sediment displacement. A limit for sediment layer resolution of one foot would make it unlikely to observe recent fault displacement, which have been measured on land in terms of fractions of a foot. Faults may have played a role in the origin of the Champlain basin, both due to actual displacements, and in controlling glacial erosion of the incompetent Ordovician shales.

HISTORY

WOLFE W. SCHMOKEL, CHAIRMAN

Most recently the History Department has had approximately two graduate students each year writing traditional theses in Vermont history. These have generally been either studies rooted in the late eighteenth century or studies of some aspect of George D. Aiken's career. With few exceptions the most significant portions of these theses have been revised and published in Vermont History. On occasion research products from advanced seminars have also been published there. See, for example, Frederick Stetson, "The Civilian Conservation Corps in Vermont" (Winter, 1973). As a general rule the "abridged" published version of student efforts is a satisfactory alternative to reading an entire manuscript. Scholars with particular interest, a biography of Aiken for example, would want to read the relevant manuscripts in their entirety. There are some instances where unpublished student research is important enough to merit revision and dissemination. One such particularly significant effort is an undergraduate study of capital punishment (History/Political Science and Sociology) by Craig Meurlin and William Rugg. The department has recently instituted a research seminar in Vermont history, but it is too soon to evaluate the significance of the research produced from it.

The Wilbur Collection is particularly rich in material relating to nineteenth and early twentieth century business as well as recent political history. There has been relatively little student activity in these areas, however. To some extent the latter may be attributed to problems relating to unprocessed collections and physical accessibility, but better use can be made of these collections.

Students in both the historic preservation and the museology (with the Art Department) programs have been producing research products that have not always taken the form of a traditional thesis. These have included public exhibitions on historic preservation in Burlington and St. Albans and a significant number of shows in the Fleming Museum planned and hung by the Cultural History students (i.e., the George Loring Brown show and the Burlington 1876 show). Students in these programs have also participated in larger projects, such as the Vermont Landscape exhibition and the registration of Vermont buildings under the auspices of the State Historic Preservation Division, plus a host of planning studies, audio-visual presentations and measured drawings.

CRAIG, THOMAS GILBERT. George D. Aiken and Agricultural Surpluses: 1941-1954. 1977.

One result of United States involvement in World War II was an increase in the demand for American agricultural goods. Congress responded to this increase by reversing its agricultural policy from one of planned scarcity to one of increased production. The Steagall Amendment to the Price Control Act of 1942 extended 90 per cent parity for the duration of the war plus two years. Expiration of this provision at the end of 1948 required action by Congress to determine future agricultural policy. Congress divided into two camps over this issue; one favoring continuation of incentive levels and another favoring adjustments of support levels closer to those of the New Deal policies.

As acting Chairman of the Senate Agriculture Committee in the 80th Congress, George D. Aiken was a leader of those Congressmen advocating adjustments. Realizing the vastness of American agricultural production capabilities and believing that export demands would eventually decrease, Aiken feared burdensome surplus production unless a flexible price support system, reflecting supply and demand, was instituted. Advocates of maintaining 90 per cent parity, however, were bolstered in their argument by two factors; incentive levels were associated with the recent prosperity of the farmer, and enactment of the European Relief Act assumed abundant agricultural production.

Not until after the end of the Korean War could Aiken claim success. The Agriculture Act of 1954 instituted a flexible price support system and established a policy of world-wide government sponsored surplus disposal. In his last chairmanship of a major committee, Aiken had been instrumental in imposing domestic agricultural needs upon American foreign policy.

GRAFFAGNINO, JONATHAN KEVIN. Zadock Thompson: Nineteenth Century Vermont Historian. 1978.

Zadock Thompson was the preeminent nineteenth century student of Vermont. Others produced more significant work in individual Vermont-related fields, but none proved as versatile as Thompson. Historian, naturalist, geologist, geographer, educator and editor, Thompson devoted most of his life to research on his native state. A pioneer in much of his study of Vermont, Thompson left behind a body of work in his many books

and articles that proved extremely valuable to Vermont scholars who came after him. As a result, Zadock Thompson's influence in Vermont lasted long after his death in 1856.

In addition, Zadock Thompson occupies a very important place in the 200-year development of Vermont historiography. By accepting the interpretations of such predecessors ad Ethan and Ira Allen and Samuel Williams and publishing those interpretations in his own numerous books, Thompson did much to popularize what became the standard view of early Vermont history. His History of 1842 and other works remained major sources for Vermont historians until after World War One, and have continued to exert considerable influence on popular Vermont history to the present. At the same time, Thompson's original research on his own era, the first half of the nineteenth century, has provided students of that era with invaluable aid in investigating nineteenth century Vermont history.

KALINOWSKI, SARAH V. Property Confiscation in Vermont During the American Revolution. 1975.

In Vermont during the era of the American Revolution competing interests struggled concurrently over the issues of "home rule" and "who should rule at home," to borrow phraseology from Carl L. Becker. Born in the dispute over land titles, the contest broadened into both an argument over local autonomy or status as an independent state, and control of the government of the new state itself.

This local revolution took place within the context of the American Revolution, which provided a convenient screen for actions on the local front. Throughout its early years a faction led by Ira and Ethan Allen, Thomas Chittenden and their associates (known at different times as the "Bennington Mob," the Arlington junto, or the family compact) dominated Vermont's government to support and advance their own policies.

Among the greatest powers of the new government was the ability to sequestrate, confiscate, and sell property of "Tories" and other enemies of the state. Defining the term "Tory" loosely as anyone questioning this faction's private view of Vermont whatever their persuasion on the larger issues of the American Revolution, the new government used its power to remove and otherwise harass its enemies.

At first this policy, limited to sequestration and sale of personal property, affected persons who opted for allegiance to Britain either from personal convictions or to escape government by the Compact leadership. Later, confiscation and sale of real property and formal banishment from the state completed the elimination of this group of "enemicals." However, when events outside Vermont led the Allen-Chittenden faction to move cautiously away from the American Revolution and toward an accommodation with the British, their policy of driving out "Tories" not only became embarrassing, but also removed some of the elements who under these new conditions would strongly support the new government. Therefore, the Vermont government had to change its practices regarding its handling of "Tory" property. The change of policy created an administrative and judicial morass after the war, when the courts and legislature were inundated by a deluge of conflicting claimants seeking restitution of their losses.

In their desire to venerate Vermont's founders, most accounts of the early history of the state see these policies as a reasonable effort to raise funds to support the war effort and rid the land of the Loyalist menace. These accounts have overlooked the changes of policy which are crucial evidence in determining the actual course of the political leadership in such perplexing and significant events as the Haldimand negotiations and the eventual accommodation with New York.

McDONALD, MARION. The Granite Years: Barre, Vermont, 1880 to 1900: A Socio-Economic History Using Quantitative Methods. 1978.

In 1880, Barre, Vermont, was a sleepy farming village of about one thousand inhabitants. Twenty years later, Barre was Vermont's fastest growing city, with a population of around eight thousand and an economy based on heavy industry. The expansion of the granite industry triggered Barre's boom. A combination of technological advances and changing architectural styles suddenly made granite production very, very profitable. Endowed by nature with an extensive outcropping of fine quality granite, Barre became the "granite capital of the world."

The granite business transformed Barre's social structure as well as its economy. The industry offered high wages in order to attract skilled stoneworkers. Men flocked to Barre from all over North America and Europe, especially from Italy and Scotland. By 1910, Barre's

population was about 35 percent foreign-born.

Both immigrant and native-born newcomers sought a better way of life and a higher standard of living in Barre, but they seldom realized their goals. Few of the profits of the granite industry went to local residents. Corporations owned the largest and most profitable granite firms. Small firms abounded, but they were short-lived and financially unstable. Business and the professions were the most lucrative occupations, but Barre's "old" families dominated these fields. The most likely avenues of upward mobility were not open to immigrants and blue collar workers.

Barre's social structure likewise failed to accommodate its newer residents. Social life revolved around a network of clubs and organizations which effectively barred immigrants and other newcomers. Residentially, Barre's "other half" clustered in the poorer neighborhoods on the north end of town while native-born white-collar workers occupied the rolling hills on the south end. A clique of businessmen and professionals dominated city government. They kept taxes low by limiting expenditures for education and social welfare and only funding projects which benefitted the city's business interests.

Ultimately, a pattern of almost total social segregation emerged. Immigrants and blue collar workers forged their own separate and parallel social network, comprised largely of ethnically-oriented religious and mutual aid societies. Labor unions assumed tremendous importance, both socially and economically. A series of bitter strikes and lockouts in the 1890's and early 1900's dramatized the depth of social divisions in Barre and the emptiness of the promise of mobility.

SANFORD, DUDLEY GREGORY, JR. The Presidential Boomlet for Governor George D. Aiken, 1937-1939, or You Can't Get There From Here. 1977.

The election of 1936 seemed to portend the collapse of the Republican party. Alfred M. Landon, the G.O.P.'s Presidential candidate, captured only the meager electoral votes of Maine and Vermont. The Republican Congressional majorities of the 1920's had been dissipated until only 17 Senators and 89 Representatives remained. A similar attrition occurred among Republican Governors. Clearly the Republican elephant was an endangered species.

As the party's leaders of the twenties succumbed to age, factionalism and electoral defeat, there was a call for new leadership. The search for new leaders focused attention on the few Republicans who emerged during the Democratic ascendency and, in rapid sequence, these men were paraded before the public. Arthur Vandenberg, George Aiken, Thomas Dewey, Robert Taft, and, eventually, Wendell Willkie were ballyhooed as modern Moses capable of leading the party out of the electoral wilderness.

From 1937 to 1939 Vermont Governor George Aiken, as one of the few successful Republican candidates in 1936, received attention as a contender for the nomination. Swiftly rising through Vermont politics, Aiken showed great voter appeal and combined faith in such traditional Republican shibboleths as the balanced budget with a belief in the humanitarian role of government. His original visibility as a successful Republican was enhanced by his opposition to federal flood control plans which made him a champion of local self-government to those who feared the centralization of power under the New Deal. In 1938 Aiken, with the help of Leo Casey, a former publicity director of the Republican National Committee, engendered rumors of a campaign for the nomination by attacking the Republican national leadership and New Deal excesses. The rumors were then used to weight Aiken's demands for a "new republicanism" and enlist aid in Vermont's resistance to the infringement on states' rights inherent in the federal flood control program. In January, 1939, after gaining a respite from federal pressure, Aiken let the boomlet fade. The following year Aiken waged a successful campaign for the U.S. Senate where he served from 1941 until his retirement in 1975.

POLITICAL SCIENCE

STANISLAW J. STARON, CHAIRMAN

The Political Science Department has two formal arrangements whereby research on Vermont is developed in a format which makes for continued comparative applications. Primarily we have Garrison Nelson's course in political behavior (PSCI 81) which, among other things, develops undergraduate projects focusing on Vermont. These projects are guided by Gary or another faculty member. Data such as Vermont election results, roll call voting in the legislature, and biographical sketches of legislators and administration is typical. These projects have been ongoing for several years.

Frank Bryan's town meeting data base has also been under construction for some time (three years). This represents the only empirical record on town meeting democracy in existence. Data on issues, participation, attendance, voting, etc., is gathered by undergraduates in a systematic fashion. This year students from Professor Schmidt's sociology class joined in the project. The data is coded in a format which allows for multiple use by others.

We also have many individual projects underway in any given semester in which students gather data on Vermont for various research papers.

PSYCHOLOGY

RICHARD E. HUSTY, CHAIRMAN

KIRK, RAYMOND S. Drug Use Patterns and Correlates Among High School Students in Rural Vermont. 1973.

The present study examined drug use behaviors among high school students in rural Washington County, Vermont. A questionnaire designed to assess demographics, drug use histories, family interaction histories, and self-disclosed reasons for first trying, continuing, stopping, or not trying drugs was administered to 413 students in grades 7 through 12. This represented approximately 10% county-wide sample of in-school youths.

Results indicated that beer and marijuana were the drugs of choice among the sample; 94% of the sample had drunk beer, and 56% drank it regularly (two or three times or more per month), 60% had tried marijuana and 36% used it regularly. Compared to the results of similar studies, these rates are among the highest in the nation. Hard drug use, including hallucinogens, barbituates, amphetamines, opiates, and inhalants, was very low, only 11% to 14% had ever tried these drugs (3% for opiates) and only 3% or less used them regularly. Other incidence and prevalence variables are discussed in detail, and the results are compared to other researchers' findings.

Demographic variables and family interaction histories were analyzed to develop predictor equations for rural adolescent drug use. Significant predictor equations were derived for beer, wine, liquor, amphetamines, opiates, barbituates, inhalants and marijuana. Differences among the predictor variables across the different equations are discussed, and theoretical discussions of the analyses are presented. Self-disclosed reasons for drug use are combined with demographic variables and family interaction histories in a discussion of prediction and etiology of adolescent drug use.

Based on the findings of the survey, recommendations are presented regarding prevention and intervention strategies for drug-taking youths in Washington County.

Recommendations regarding methodological changes are presented and specific recommendations are made for changes in the survey instrument.

SCHUMACHER, TIMOTHY GEORGE. An Evaluation of the Psychiatric Technician Program at Vermont State Hospital. 1976.

An attempt was undertaken to experimentally evaluate the Psychiatric Technician Program at Vermont State Hospital. Attitude measures were obtained on three aide groups, each of whom had just finished their successively higher levels of training in this program. Data was gathered on these training-level groups in response to the presentation of four different patient types, used as experimental stimuli. The investigation was aimed at determining whether attitudes toward patients vary as a function of differential amounts of taining which aides undergo. Because aides who comprised each of the training-level treatment groups were not homogeneous with one another with respect to other potentially important variables (e.g., amount of work experience accrued from one training level to the next, and their socio-educational composition), it was necessary to assess the correlative relationship between these two "covariates" and the attitude measures, and remove this relationship statistically through an analysis-of-covariance design.

Attitude data was similarly gathered on three aide groups who had already finished their training, but who had in the meantime compiled differential amounts of work experience. Analysis of this data was aimed at determining whether attitudes varied as a function of differential amounts of work experience, with training level held constant. Aides comprising the three experience-level treatment groups were not homogeneous with one another in terms of their age and possibly their socio-educational composition. For this reason, an analysis-of-covariance design was applied here also in an attempt to statistically control for the influence of these extraneous variables.

Analyses of the data failed to find experimental main effects attributable to either the training-level or experience-level treatment conditions. Some consistent statistically significant correlations were found between the socio-educational covariate and the attitude measures in the training-level set of analyses. Some consistent statistically significant correlations were found between the age covariate and the attitude measures in the work-experience set of analyses.

Implications of these findings were discussed in terms of shortcomings of the theoretical model used to guide the study, as well as possible shortcomings of the

methodology employed to test for effects.

WILL, ANN SIMCOKE. The Winooski Workshops, A Field Study: Citizen Involvement in a Vermont River Basin. 1976.

Public participation is a dynamic communication process within a social system, a source of information and support for social and economic goals. Current interest in public participation is sparked by changes in social values and more specifically, by a change in the public's perception of governmental responsibility. Current efforts in this field, particularly as related to resource decision-making, are directed from an action agency toward the public. Vermont is currently drawing up its River Basin Water Quality Plans for the major rivers of the State. State agencies have called for citizen input into this planning process. This provided an opportunity to test a commonly used workshop technique for involving citizens against a second format which involved a more social-psychological orientation and small-group problem-solving techniques. Questions of social interaction processes, structural components of meetings and previous commitment to a participation process, were viewed as determinants in sustaining long-term interest in water resource activities.

The purpose of this research project was to test the hypothesis that differences in environmental settings reflect, and are reflected in, citizen motivation levels to become involved in water resource decision-making. A secondary focus of the research was an analysis of citizen motivations to become involved as reflected in questionnaire responses and attendance rates. Two distinctly different types of meetings were held in the Winooski River Basin. The subjects or participants in this study were found by use of a variation of the technique developed to identify "community influentials." The subjects were also surveyed prior to the meetings in terms of their "willingness-to-act" on water-related problems. A total of five meetings was held over a four month period.

Small sample size, both in the questionnaire responses and the attendance rates, necessarily limits any broad interpretations of the results. However, differences due to the environmental settings reflect research findings observed in more "controlled" experimentation. The research project concludes with seven recommendations for future such attempts to conduct field research in this area and a list of Do's and Don'ts for those interested in working with citizens or resource managers in the natural resources field.

RELIGION

LUTHER H. MARTIN, CHAIRMAN

For the last several years Ted Brenneman has been involved in a study of the Loric (as in folklore) and its relationship to the sacred and has taught a course several times entitled Folk Religion. In that course students do independent research on loric topics and make presentations, usually involving slides, tapes, etc., which are to be eventually catalogued in our slide archive. Some of the topics involving Vermont research are: Sugaring in Vermont, The Lake Champlain Monster, Vermont Graveyards, Portrait of a Vermont Farmer, The Seventh Son Tradition in Vermont, and Children's Lore in Vermont.

Robert Gussner has also been involved in a study, not completed, of contemporary religious groups in Burlington. There have been proposals to conduct a course on this topic which would enable the compiling of research and the completion of the project.

SOCIOLOGY

JEANETTE R. FOLTA, CHAIRWOMAN

For statement on student research in Sociology, see Introductory Remarks, pp. 1-6.

THEATRE

EDWARD J. FEIDNER, CHAIRMAN

The Department of Theatre has no graduate program, but our undergraduates have added to the general knowledge of our state both in traditional and non-traditional ways.

Under the Special Topics rubric, the Department offered a course in Vermont Theatre History, an area in which there is little published documentation. The students' major research project was compiling calendars of theatrical activities in Burlington, St. Albans, Enosburg Falls, Middlebury, Rutland, and a few other towns. These data have appeared in one form or another in several articles and papers that George Bryan has published or delivered; they will continue to be useful in his proposed theatre history of Vermont.

A former student, Mary Bashaw, was particularly interested in Vermont theatre history, and her work undergirds several projects. She was the principal compiler of the list of UVM theses dealing with Vermont, and her diligent combing of the issues of the Burlington Free Press enabled Bryan to complete an essay entitled "The Howard Opera House in Burlington," which was published in Vermont History. Ms. Bashaw also assisted Bryan in the research for a paper called "Drama as Social Corrective: A Performance at Windsor, Vermont, in 1791," which appeared in the New England Quarterly.

Another student, Gail Gauthier, prepared a calendar of theatrical events in Burlington from 1845-1870, much of which is the foundation of an article currently being expanded and revised called "The Public Platform and Patriotism in Vermont during the Civil War."

In this fashion, students have contributed to our understanding of theatre in Vermont, but theatre students, as creators of art, help to fashion the cultural and social climate of the state with every production they mount. The presentation of Royall Tyler's The Contrast is an obvious but no more significant contribution than the recent premier of Melba Thomas' When Bananas Grow on a Cherry Tree. A substantial cultural asset of the state is the Champlain Shakespeare Festival, now in its twenty-first year, as is the annual Playtimers' tour of children's plays to Vermont's public schools. Indeed, theatrical production at the Royall Tyler Theatre is but the continuation of a tradition nearly as old as the state itself; UVM's graduating class of 1804

staged the first production at the institution. Despite the fact that the research activities of theatre students are disseminated in time and space rather than on paper, their intellectual fruits enrich the state as much as published and more than unpublished essays.

ZOOLOGY

GEORGE M. HAPP, CHAIRMAN

A variety of research programs within the zoology department are concerned with Vermont fauna and natural habitats. These research efforts include those of masters and doctoral students, of undergraduate honors students and those of faculty as well. Among the present faculty there are four who are particularly concerned with Vermont.

Drs. Henson and Potash have been monitoring the composition and physical limnology of Lake Champlain for over a decade. These studies are now extending to the wetlands surrounding the lake and other wetlands within the region. The research of their graduate students has focused more on the biology of the organisms which live in these waters.

Dr. Kilpatrick is an ecological geneticist whose major research efforts are concerned with rodent populations and rodent speciation. He has a continuing interest in the mouse populations on the islands in Lake Champlain and is analyzing the relative isolation of each island population and the extent of gene flow among the various populations. Recently, Dr. Kilpatrick has also become interested in vole populations which do serious economic damage to the apple orchards in the northeast including Vermont. These research efforts of Dr. Kilpatrick (in collaboration with Drs. Jillson and Woods) are aimed toward describing the immigration of mice into orchards, the growth of mouse populations within orchards and the time in which maximum damage is done to trees. The preliminary efforts on the vole problems are conducted by our entomology department in the School of Agriculture.

The research of Dr. Ross Bell centers upon the insects of Vermont with special emphasis on beetles in close collaboration with members of the entomology department. He is assembling a synoptic collection of insects of Vermont and is developing checklists for certain of the more prominent and frequently encountered of the insect groups.

New faculty members to be added to the department over the next two years will be developing their own research interests in Vermont context. Some of this will involve mathematical modeling of ecosystems within the state.

BERTRAM, PAUL EDSON. <u>The Distribution and Abundance of</u>

Riffle Fauna in a Bifurcated Mountain Stream: Gleason Brook, Camel's Hump, Vermont. 1976.

A study of the fauna of riffles in a bifurcated mountain stream, one branch of which was spring-fed, the other having its source in a complex of old beaver ponds, was made from October 15, 1973, to October 12, 1974. Environmental parameters measured include a photographic analysis of the substrate, temperature, total alkalinity, pH, conductivity, concentration of selected cations, detritus, and planktonic drift. 70,592 organisms were collected representing 102 identified taxa, 77 at the species level. Three faunal communities were recognized: an "upper" mountain stream group dominated by Nemoura and Leuctra, a "lower" mountain stream group dominated by Epeorus (with little or no grading from the upper to the lower), and the "lake outflow" group dominated by Habrophlebia, Hydropsyche, and Simulliidae. The beaver ponds influence Gleason Brook by providing warm water during the spring and summer, by raising the pH of the water, and by providing fine detritus as a source of food for the fauna.

DURANT, THOMAS. Feeding Rates and Assimilation Efficiencies for Daphnia Pulex (Crustacea; Cladocera) When Fed Limnetic Bacteria and Yeast From Lake Champlain. 1978.

Bacteria and yeast were isolated from the foreguts of Daphnia sp. collected in Lake Champlain. Three gram negative bacteria (Acinetobacter calcoaceticus, Pseudomonas maltophilia and Xanthomonas ampelina), a gram positive bacterium (Bacillus sp.) and a pink yeast (Rhodotorula sp.) were identified and then used in Daphnia feeding experiments. Pure cultures of bacteria or yeast were used to prepare C^{14} labelled feeding suspensions above the incipient feeding level of Daphnia. An estimated feeding rate (microbial cells/hour/animal) and an assimilation efficiency (C^{14} assimilated/C^{14} ingested X 100) were determined for Daphnia pulex when fed each of the 5 food organisms. The mean estimated feeding rate was for Xanthomonas. The mean assimilation efficiency was lowest for Daphnia being fed Bacillus, highest when fed Rhodotorula and essentially the same for the 3 gram negative bacteria. Possible implications of Daphnia pulex having different feeding rates and/or different assimilation efficiencies for different components of the bacterioplankton are proposed and discussed.

GUTOWSKI, THOMAS BURT. The Ecology of Mysis Relicta (Loven)

in Lake Champlain. 1973.

In order to obtain data in depth distribution, abundance, growth and reproduction, standing crop, and general environmental factors affecting the population dynamics of the crustacean Mysis relicta Loven in Lake Champlain, bimonthly samples were collected from the main lake at a depth of 100m. from April through October, 1975. Mysids ranged from 3-23mm. in length and showed a complex generation time from 14-22 months due to an extended period of reproduction in summer. Juveniles were most abundant during summer, immature males and females became prominent in fall, and the mature adults were abundant in winter and spring. Growth rate during the sampling period averaged 1.9mm./month. Weight increased with the cube of the mysid length. Mature females had a brood size of from 6-33 with a mean of 16.7 ± 1.04. Standing crop had a mean of 67.5 kg/ha with the greatest standing crop at the beginning of the reproductive period. Mysids had a mean density of $711/m^2$ surface area and a high of $1673/m^2$ in July at the peak of the brood release period. Tows made to determine vertical distribution revealed that mysids remained at least 35m. off the bottom at a lake depth of 100m. during the day. Immature mysids were found higher in the water column than adults. Horizontal distribution tows showed that mysids were not found above the 50m. contour for this lake.

PAGEL, CARL WILLIAM. A Study of the Influence of Pulp and Paper Wastes on the Benthos of Southern Lake Champlain. 1976.

The objective of this study was to define the composition of the benthic communities of ten widely separated embayments of Lake Champlain. The benthic communities were ascertained from a pattern of samples collected from a one hectare area in each bay. Three hundred samples were collected for this study. The dominance of major taxa varied considerably in the ten study areas. More than fifty species of Chironomidae were identified from head mounts of the immature insects. Emphasis is placed on the distribution and abundance of the dominant species of Diptera.