DEPARTMENT OF GEOLOGICAL SCIENCES

STATE UNIVERSITY OF NEW YORK AT ALBANY

Internal Evaluation

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HISTORY OF THE PROGRAM

A Geology program was started at the State University at Albany in 1963, when J.M. Bird and P.C. Benedict were members of the then-new Department of Earth and Atmospheric Sciences. They were joined in 1965 by W.D. Means and in 1967 by G.W. Putman. In 1968 this group separated from Atmospheric Science and became the Department of Geological Sciences. M.S. and Ph.D. programs were introduced in 1969 and 1971. The faculty grew to nine by 1975, and this number has been stable since. The number of upper-division undergraduate majors has grown from about 10 in 1972 to 50 at present, while the graduate enrollment has grown from about 6 to 30.

The policy of the Department has always been to emphasize research and graduate training and to try to achieve some distinction nationally and internationally by focusing on a restricted range of research topics, while still providing sufficiently comprehensive and expert undergraduate instruction. Starting about 10 years ago, we chose to concentrate on tectonics/structural geology and petrology/geochemistry, with a 1972 staff including J.M. Bird, J.F. Dewey, B.E. Hobbs, W.D. Means, A. Miyashiro, and P.F. Williams. Bird, Hobbs, and Williams left shortly thereafter, but their places were taken by K.C. Burke, P.J. Fox and W.S.F. Kidd, further strengthening the tectonics side of the Department.

This was an extraordinary concentration of faculty resources and talent in one research area, especially for a purely geological Department (i.e., one lacking a geophysics component). Yet we believe the concentration of resources paid enormous dividends: During the mid- and late-1970's, this Department contributed as much as any in the world to building the geological (as opposed to geophysical) basis for plate tectonics and to defining the geological corollaries of plate tectonics. It was, and remains today, an exciting

environment that produced great interchange and cross-fertilization among faculty and graduate students, including engaging some petrology/geochemistry faculty (S.E. DeLong, A. Miyashiro) in tectonics-related projects.

The departures of Fox and Dewey (to the University of Rhode Island and the University of Durham, respectively) obviously weakened our traditional tectonics cadre. We have been extremely fortunate, however, in replacing them with two excellent junior appointees - T.M. Harrison and J.W. Delano - who simultaneously have allowed us to strengthen our second thrust, petrology/geochemistry, and to expand our tectonics horizons through their related work in geochronology, thermal evolution of uplifts, development of planetary atmospheres, and early history of the earth.

While these new appointments clearly represent a short-term shift in Department strengths, the overall focus on the two areas of tectonics/structural geology and petrology/geochemistry remains unchanged, and the two areas are now more usefully linked across newly-emerging research topics within the discipline. We are convinced that this kind of intentional focusing of the Department's efforts permits us to atract superior faculty, enroll professionally motivated graduate students, provide a good undergraduate program, and maintain an international reputation, despite our small size. We return below, in the section on "Faculty" to the question of future directions.

UNDERGRADUATE AND GRADUATE PROGRAMS

The programs leading to the B.S., M.S., and Ph.D. degrees are designed for professional training of geologists who will eventually work in universities, or government agencies, or in industry. In addition, we provide a modestly subscribed program in Earth Science for future high school teachers.

Undergraduate courses. The undergraduate courses are listed below, with asterisks preceeding those included in the degree requirement for geology majors. Full details of degree requirements are given in the next section.

Course Number	Title	Credits
GEO 100	Planet Earth	3
GEO 105	Environmental Geology	3
GEO 107	The Oceans	3
* GEO 120	Fundamentals of Geology	3
GEO 200	Physical Geology	3
GEO 205	Historical Geology	3
* GEO 210	Mineralogy I	3
* GEO 220	Mineralogy II	3
* GEO 230	Chronology and Field Methods	4
* GEO 240	Structural Geology I	3
* GEO 310	Petrography I	2
* GEO 320	Petrography II	2
GEO 340	Structural Geology II	2
GEO 370	Economic Geology	3
GEO 380	Paleontology	3
* GEO 400	Field Mapping (summer)	6
* GEO 410	Geochemistry	3
* GEO 440	Structural Geology III	4
* GEO 450	Special Topics	2-3
* GEO 470	Tectonics	3
* GEO 480	World Historical Geology	3
* GEO 497	Independent Study	2-3

Undergraduate Degree Requirements

(a) Major in Geology (B.S.). A minimum of 66 credits for the combined major and second field including: GEO 120, 210, 220, 230, 240, 310, 320, 400, 410 or 440, 450 or 497, 470, 480; MAT 112 and 113, or MAT 110a and 110b and 110c; PHY 120, 121, 124, 125; CHM 121, 122; CHM 320, 321 or PHY 220, 221. Students are strongly urged to elect

the following additional courses: MAT 214, 220, 311; CSI 201. Students are also encouraged to take electives in English. (MAT 112-113 is a two-semester calculus sequence. MAT 110a, b, c is the same two-semester content spread over three semesters. The required physics courses are two semesters of physics with calculus; the optional physics course is a third semester with calculus.) CHM 121-122 is a year of introductory college chemistry. CHM 320-321 is a semester of physical chemistry. MAT 214, 220, 311 are respectively a third semester of calculus, linear algebra, and a first course in differential equations.)

Perhaps the main weakness of our program for Geology majors is that neither paleontology nor geophysics are required courses for the degree. We do not have faculty expertise in these areas, or time within the University-prescribed limits on degree requirements to include paleontology or geophysics as degree requirements. However, we have been offering both courses regularly as optional additions to undergraduate programs, and many of the better students have taken them. Paleontology was taught this past Spring by Dr. E. Landing of the N.Y.S. Geological Survey; Geophysics was taught by Dr. G. Sutton, an area consulting seismologist.

(b) Major in Earth Science (B.S.). A minimum of 65 credits for the combined major and second field including GEO 100, 200, 205, 210, 220, 230; MAT 112 and 113, or MAT 110a and 110b and 110c; CHM 121, 122, 320, 321; PHY 105, 106; ATM 103, BIO 102; plus 9 additional credits in geology courses at the 300 level or above. Students are also encouraged to elect GOG 201.

Graduate Courses. The graduate courses are listed below, with asterisks for courses required of all Ph.D. students and recommended for all M.S. students.

Course Number	Title	Credits
* GEO 500	Graduate Student Seminar	0
GEO 505	Optical Mineralogy and Petrography	3
* GEO 510	Igneous Petrology I	3
GEO 515	Introductory Geochemistry	4
* GEO 517	Tectonics	3
* GEO 518	World Historical Geology	4
* GEO 530	Metamorphic Petrology	3
GEO 540	Geophysics	4
* GEO 545	Structural Geology III	4
GEO 620	Tectonics II	3
GEO 630	Phase Equilibria	3
GEO 650	Isotope Geochemistry	3
GEO 670	Topics in Mineralogy	1-4
GEO 671	Topics in Igneous Petrology	1-4
GEO 672	Topics in Metamorphic Petrology	1-4
GEO 673	Topics in Geochemistry	1-4
GEO 674	Topics in Stratigraphy-Sedimentation	1-4
* GEO 675	Topics in Structural Geology	1-4
GEO 676	Topics in Tectonics	1-4
GEO 678	Topics in Geophysics	1-4
* GEO 694	Directed Readings in Geology	2-6
GEO 699	Thesis Research	2-6
GEO 710	Igneous Petrology II	3
GEO 730	Metamorphic Petrology II	3
GEO 740	Tectonics III	3
GEO 894	Directed Readings in Geology	2-6
GEO 898	Doctoral Research	2-9
GEO 899	Dissertation	3-12

Graduate Degree Requirements

(a) M.S. in Geology

1. A general oral examination given early during the first semester of graduate study to discover any areas in which the student is insufficiently prepared for this program. Students who

fail portions of this examination will be required to satisfactorily complete appropriate undergraduate course work in addition to the requirements below.

2. Geology (18-30 credits).
   a. Courses as advised, including two courses in petrology and one in structural geology.
   b. Independent research in a specialization (GEO 699 for 6 credits) with the results of the research reported in an acceptable thesis.
   c. In addition to the normal 18 credits in geology, students are required to take GEO 500 each session of their registration.
3. Supporting courses (0-12 credits). Selected courses in related fields as advised.
4. Satisfactory completion of a major field examination in geology.
5. Foreign language requirement. A reading knowledge of French, German, or Russian is desirable before entrance to the program and must be demonstrated before its completion. An alternative research tool (e.g. computer programming) may be substituted for a foreign language at the discretion of the department.

(b) Ph.D. in Geology. The course of study of each student is planned with the advisory committee which takes into account the student's previous preparation, area of specialization, and professional objectives. The student must complete a minimum of 60 credits of advanced courses, seminars, independent study, and research. In addition to the normal 60 credits of graduate courses, students are required to take GEO 500 each semester of their registration.

Dissertation. The student must submit an acceptable dissertation which represents a significant and original research contribution in the area of specialization chosen.

Departmental Examinations

1. All incoming students will be given a general oral examination early in the first session of graduate study to discover any areas in which they may be insufficiently prepared for this program. Students who fail portions of this examination will be required to satisfactorily complete appropriate undergraduate course work in addition to the 60 credits required for the Ph.D. degree.

2. The student must pass a written qualifying examination in one of the following fields: structural geology, tectonics, marine geology, igneous petrology, metamorphic petrology, geochemistry. This examination will normally be taken during the third or fourth semester of graduate study.

3. The student must pass an oral examination focused on presentation and defense of an original research proposal. This examination will normally be taken during the fourth semester of graduate study.

4. The student must satisfactorily complete an oral defense of the dissertation.

Research Tool Requirement. A foreign language may or may not be required for the Ph.D. depending on the relevance of such a language to the student's thesis. The relevance of a foreign language is to be decided by the student's committee. If a decision for no foreign language is made, then an alternative research tool proposal must be made by the committee. The acceptance of this alternative is to be made by a majority vote by

the departmental faculty. If a decision for a foreign language is made by the committee, then this must also be submitted to the departmental faculty for ratification.

The advisory committee may, at its discretion, require a second foreign language.

Admission to Candidacy. A student is admitted to candidacy for the degree of Doctor of Philosophy upon the following:

1. Satisfactory record in course and research study.
2. Completion of the University residence requirements.
3. Satisfactory completion of research tool requirement.
4. Satisfactory completion of the comprehensive and qualifying examinations.
5. Approval of proposed dissertation topic.

Requirements for the B.S.-M.S. Program

This recently introduced program permits undergraduates of exceptional ability to pass from our normal B.S. program directly into the M.S. program and to complete both degrees in a total of five years. To apply for the program, undergraduates must have completed 56 credits of undergraduate work, but not more than 100 credits. They must have a grade point average of 3.2 or better, and they must be supported by letters from three faculty members. The requirements for the two degrees are as above, except that a total of 12 credits may be applied toward both the B.S. and M.S. requirements. This program is one we were asked to introduce by the University, at the same time that it was introduced in many other departments. At present only one student is enrolled. Enrollments of the order of 4-5 are expected in the future.

Program and Course Changes

The Department is perennially thinking about program and course changes. Changes planned for submission to appropriate University committees in Fall 1982 include: elimination of GEO 200, 205, 105; Changing titles of GEO 310, 320 (Petrography I, II) to Petrology I, II, and increasing each from 2 to 3 credits, decreasing credits from 4 to 3 for GEO 480 (World Historical), 440 (Structure III), and 410 (Geochemistry); and introducing a regular graduate seminar on deformation mechanisms and microfabric. Other changes are expected in connection with our new thrust in petrology/geochemistry.

Service Load.

The Department offers five courses for non-majors which are subscribed roughly as follows each academic year.

GEO 100	Plant Earth	200 students
GEO 105	Environmental Geology	50 students
GEO 107	The Oceans (joint course with At. Sci. and Biology)	100 students (Geology share)
GEO 200	Physical Geology	25 students
GEO 205	Historical Geology	25 students

Physical, Historical and Environmental Geology are being dropped after the present academic year. The other two courses are expected to take up greater enrollments as more students become affected by the University's new distribution requirements.

Advising, Examinations, and Job Information

Undergraduate advising is done by one faculty member for each undergraduate class. A suggestion has been made that we change this system to one where a given advisor stays with a given incoming group of majors throughout their undergraduate careers.

Graduate advising is done by the Graduate Committee (presently Professors Kidd, DeLong, and Harrison) for students who are beginning their programs, and by their thesis advisor and the Graduate Committee for students who are farther along. An improvement intended at the graduate level is to assemble all relevant University and Departmental academic regulations and policies into a single graduate handbook. These documents are available now to students and their advisors, but are not always readily available , or observed to the letter.

Qualifying examinations for graduate students are made up by and assessed by 3 or 4-member faculty committees chosen with consultation between the Graduate Committee, the thesis advisor, and the student. Thesis and dissertation defenses are also normally carried out before Departmental committees, but we are considering a change that would make it more common than in the past to include an external examiner.

Job information is provided our students mainly through solicitations received by the Department and through faculty contacts. Details of positions to which our graduates have gone are given later.

RELATIONS TO OTHER PROGRAMS

Interaction of our staff and students with other programs on the SUNYA campus is limited, owing to the accidental fact that our research activities do not overlap much with those in other groups. However, our Technical Specialist, Karleen Davis, regularly takes part as instructor in the summer X-ray Clinic of Professor Chessin in the Physics Department, and some of our undergraduates have participated as students. A potential future link with Atmospheric Sciences is provided by our recent hiring of John Delano, a student of planetary evolution, including evolution of their atmospheres.

Interaction with the Geology Department at R.P.I. is stronger. Our

graduate students and theirs have taken course work in the other Department, and there has been active research collaboration and sharing of facilities between Drs. Watson and Bayly of R.P.I. and Drs. Harrison and Means of SUNYA, respectively. Dr. Harrison has also been instrumental in developing a mass spectrometer user's group with members in S.U.N.Y.A. departments and at R.P.I.. We interact frequently with members of the New York State Geological Survey office in Albany and they have often employed our students part-time. Drs. Putman and Kidd of SUNYA and Drs. Mitronovas, Isachsen and Landing of the Survey are particularly active in this exchange, which includes research collaboration between Putman and Mitronovas and between Kidd and Landing. Mitronovas has also provided a geophysics course for our students for several years, and Landing taught a paleontology course last spring. R. Dineen of the Geological Survey has taught a course on glaciology and Holocene-sedimentation. Isachsen, Landing, and Robert Fakundiny (the Director of the State Survey) have adjunct professor status in the Department. We have interacted with the New York State Health Department to the extent of using their electron microscope facilities.

Several members of the Department (Harrison, Delano, DeLong) have strong working links with nearby universities having better or different geochemical analytical facilities than ours (SUNY at Stony Brook; M.I.T., Columbia). Miyashiro is a Research Associate at the Lamont-Doherty Geological Observatory of Columbia University in Palisades, New York.

In the State of New York as a whole there are 9 other Ph.D.-granting departments (SUNY-Stony Brook, SUNY-Buffalo, SUNY-Binghamton, Columbia, Cornell, Rochester, Syracuse, R.P.I., and N.Y.U.). We think of our graduate and undergraduate programs as comparable in quality to the best of the programs at these other universities. At the graduate level, Columbia, Cornell,

and Stony Brook are the leaders, though each, like the Albany Department is somewhat specialized. Albany's geological strength in tectonics and structural geology has nicely complimented the more geophysical approach to these subjects at Columbia and Cornell. Our newly strengthened thrust in petrology/geochemistry complements an accidental decline in activity in these subjects (due to staff departures) at Stony Brook.

It should be emphasized that although we have certain close and valuable ties with other institutions in the Northeast, our programs of training and research are part of an international enterprise, and our most valued colleagues and students are as often as not from other States and countries. This is partly because Geology is a small field compared with, for example, Biology or Chemistry, and partly because Geology is international by nature.

STUDENTS

Enrollments

Undergraduate and graduate enrollments for the past five years are shown in Figure 1.

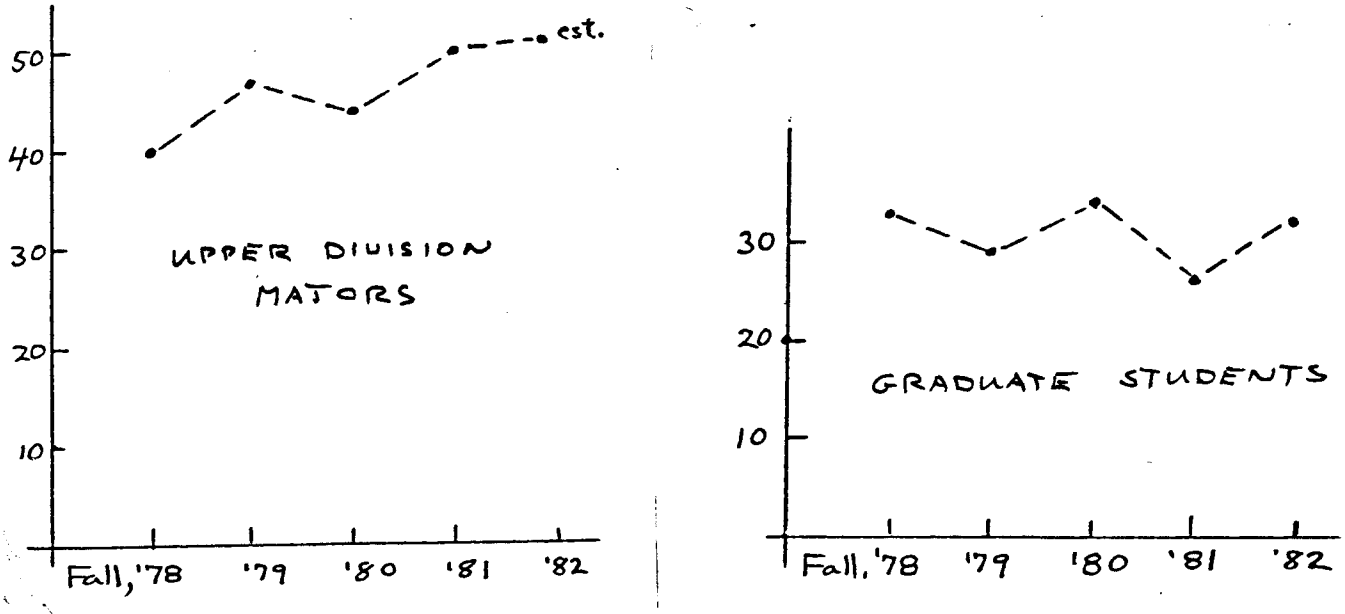


FIGURE 1 ENROLLMENTS

Of the graduate students enrolled for Fall 1982, 30% are in the Ph.D. program and 60% are in the M.S. program. 10% are enrolled for non-degree study. Proportions similar to these have prevailed over the past few years.

Sources of Graduate Students

A tabulation showing the sources of our graduate students for the past four years, their previous degrees, and their performance on the Graduate Record Examinations follows.

G R E SCORES

	Previous Institution	Previous Degree	Program	Verbal	Quantitative	Advanced
*	Imperial College(U.K.)	M.Sc.	Ph.D.	700	730	760
**	Colgate	B.A.	Ph.D.	680	700	700
	Kentucky	M.S.	Ph.D.	620	790	590
	Kentucky	M.S.	Ph.D.	510	590	580
	Virginia Polytechnic University	M.S.	Ph.D.	570	620	730
	Lehigh	M.S.	Ph.D.	570	750	670
	SUNYA	M.S.	Ph.D.	610	740	630
*	Vermont	B.A.	Ph.D.	650	720	790
*	Oberlin	A.B.	Ph.D.	700	520	550
	AVERAGE FOR PH.D. STUDENTS			634	684	666
	Wurzburg (Germany)	B.S.(equiv)	M.S.	--	--	--
	SUNYA	B.S.	M.S.	490	520	--
	SUNYA	B.S.	M.S.	420	710	--
	SUNYA	B.S.	M.S.	470	510	--
	Hobart and Wm Smith	B.S.	M.S.	540	680	520
	Univ. Centrale Venezuela	M.Sc.	M.S.	--	--	--
	Middlebury	B.A.	M.S.	440	520	630
	Colgate	B.A.	M.S.	580	600	--
	SUNYA	B.S.	M.S.	650	750	700

Previous Institution	Previous Degree	Program	Verbal	Quantitative	Advanced
SUNYA	B.S.	M.S.	520	540	--
SUNYA	B.S.	M.S.	--	--	--
Yale	B.S.	M.S.	560	570	670
Univ. Calif. Davis	B.S.	M.S.	560	680	670
Academia Sinica (China)	B.S.(equiv)	M.S.	--	--	--
Univ. Chicago	B.A.	M.S.	700	720	--
Vermont	B.A.	M.S.	550	640	610
R.P.I.	B.S.	M.S.	560	650	610
Illinois	B.S.	M.S.	500	630	570
Colgate	B.A.	M.S.	440	730	690
SUNYA	B.S.	M.S.	--	--	--
C.C.N.Y.	B.S.	M.S.	510	690	730
AVERAGE FOR M.S. STUDENTS			530	634	640

* S.U.N.Y.A. Presidential Fellow

** N.S.F. Pre-doctoral Fellow

Graduate Student Support

Most of our students in the M.S. and Ph.D. programs are supported financially. In Fall 1982, 11 students will be supported by University Teaching Assistantships ($4700-5100), one by a University Fellowship ($3,700) and one by a University Presidential Fellowship ($6,200). Of the remaining 18 students, four are on grant money, four are supported by foreign governments or exchange programs, one has an N.S.F. Pre-doctoral Fellowship, and nine are unsupported. Summer support has been obtained from grants to faculty members, from the U.S. Geological Survey, and from research awards directly to students from the American Association of Petroleum Geologists, the Society of Sigma Xi, the S.U.N.Y.A. Benevolent Association, and the N.S.F. Dissertation Improvement Program.

Over the past four years we have had three students on N.S.F. Predoctoral Fellowships. Each of these years there have been only about 13 N.S.F. Fellowships in Geology nation-wide.

Theses Completed; Present Employment

A list of theses completed in the Department and the present employment of each former student follows.

	Name	Program	Thesis Title	Date Started	Date Completed	Present Employment
	D. Rowley	Ph.D.	"Operation of the Wilson cycle in the evolution of the Early Paleozoic of Western New England"	9/80	(12/82)	Univ. of Chicago (Post-Doc. Fellow)
	M. Swanson	Ph.D.	"The Structure and Tectonics of a Mesozoic Dike Swarm in Eastern New England"	9/79	12/82	Univ. of S. Florida (Asst. Prof.)
*	M. Hempton	Ph.D.	"Structure of the Northern Margin of the Bitlis Suture Zone near Sivrice, Southeastern Turkey"	9/77	8/82	Carlton College (Asst. Prof.)
*	A.M.C. Sengor	Ph.D.	"The Geology of the Albula Pass Area Eastern Switzerland in its Tethyan Setting: Palaeo-Tethyan Factor in Neo-Tethyan Opening"	9/76	8/82	Istanbul Tech. Univ. (Assoc. Prof.)
	R. Blake	M.S.	"The Structural Geology of the Tectonized Ultramafic suite of the Table Mountain Massif"	1/80	5/82	Texaco (Houston)
	J. Ach	M.S.	"Volcanics near Ankara Turkey"	9/78	5/82	U.S.G.S.
	R. Moody	M.S.	"The Geology of the Oceanographer Transform Fault"	1/79	5/82	
	J. Pindell	M.S.	"Permo-Triassic Reconstruction of Western Pangea and the Evolution of the Gulf of Mexico-Caribbean Area"	9/79	12/81	Pennzoil (Houston)

Name	Program	Thesis Title	Date Started	Date Completed	Present Employment
B. Idleman	M.S.	"Geology of the Plutonic and Hypabyssal Rocks of the Betts Cove Ophiolite Complex Newfoundland"	9/78	12/81	Ph.D. program-SUNYA
J. Sullivan	M.S.	"Some chemical and mineralogical Aspects of Plutonic Rocks from the North Arm Mountain Massif"	9/75	12/81	Univ. of Houston (anal. geochemist)
D. Rowley	M.S.	"Complex Structure and stratigraphy of the lower slices of the Taconic Allochthon near Granville, New York"	9/76	5/81	Ph.D. program-SUNYA
J. Stroup	M.S.	"Geologic Investigations in the Cayman Trough and the nature of the Plutonic Foundation of the Oceanic Crust"	9/76	5/81	Novelist
P. Washington	M.S.	"Structural Analysis of an Area near Middlebury, Vermont"	9/75	5/81	Trinity Univ. NE Geology Publications
F. Vollmer	M.S.	"Structural Studies of the Ordovician Flysch and Melange in Albany Co., New York"	9/78	5/81	Ph.D. Program-Univ. of Minn.
** W. Bosworth	Ph.D.	"Structural Geology of the Fort Miller, Schuylerville and Portions of the Schaghticoke 7-1/2' Quadrangles, Eastern New York, and its implications in Taconic Geology; and Experimental and Theoretical Studies of Solution Transfer in Deforming Heterogeneous Systems"	9/77	12/80	Colgate Univ. (Asst. Prof.)
J. Casey	Ph.D.	"The Geology of the Southern Part of the North Arm Mountain Massif Bay of Islands Ophiolite Complex, Western Newfoundland with Application to Ophiolite Obduction and the Genesis of the Plutonic Portions of Oceanic Crust and Upper Mantle"	1/77	8/80	Univ. of Houston (Asst. Prof.)

	Name	Program	Thesis Title	Date Started	Date Completed	Present Employment
*/**	R. Thiessen	Ph.D.	"Theoretical and computer assisted studies in Tectonics, Structural Geology, and Isotope Dating"	9/76	8/80	Wash. State Univ. (Asst. Prof.)
	J. Young	M.S.	"Saratoga: The Bubbles of Reputation and their Implications for an Embryonic Rift System in the Upper Hudson River Valley"	9/77	8/80	Gen. Refractories Co.
	E. Rosencrantz	Ph.D.	"The Geology of the Northern Part of North Arm Massif, Bay of Islands Ophiolite Complex, Newfoundland: with application to upper oceanic crust lithology structure, and genesis"	9/76	5/80	Univ. of Texas-Austin (Research Scientist)
	R. Livaccari	M.S.	"Geology of the Lewisport/Loon Bay area, Newfoundland, Canada"	1/78	5/80	Earth Satellite Corp.
	K.D. Nelson	Ph.D.	"Geology of the Badger Bay-Seal Bay area, North-Central Newfoundland"	9/76	12/79	Cornell Univ. (Research Scientist)
	F. Malcolm	M.S.	"Petrography, Mineral Chemistry and Microstructures of Gabbros from the Mid-Cayman Rise Spreading Center"	9/75	12/79	Amoco (New Orleans)
	C. White	M.S.	"Petrology and Mineral Chemistry of Some Jan Mayen Volcanics"	9/77	12/79	
	W. Gregg	Ph.D.	"The development of foliations in low, medium, and high grade metamorphic tectonites"	9/76	8/79	Michigan Tech. Univ. (Asst. Prof.)
	A.M.C. Sengor	M.S.	"Geometry and Kinematics of Continental Deformation in Zones of Collision: Examples from Central Europe and Eastern Mediterranean"	9/76	5/79	See above
	S. O'Connell	M.S.	"Geology of the Mafic/Ultramafic Transition Table Mountain, Western Newfoundland"	9/75	5/79	Ph.D. Program - Columbia Univ.

Name	Program	Thesis Title	Date Started	Date Completed	Present Employment
K. Scanlon	M.S.	"Paleoclimatic Implications of Oxygen Isotope and Sedimentological Study of Late Miocene and Early Pliocene Sediments from the South Atlantic, Western Indian Ocean and the Gulf of Aden	9/76	5/79	U.S.G.S.- Woods Hole
J. Grippi	M.S.	"The Geology of the Lucea Inlier, Western Jamaica"	9/76	12/78	Cities Service Co. (Houston)
L. Jacobi	M.S.	"Stratigraphy and Structure of the Taconic Allochthon, Northern Washington County, N.Y."	9/74	12/77	Sunoco (Dallas)
J. Karson	Ph.D.	"Geology of the Northern Lewis Hills, Western Newfoundland"	9/75	5/77	Woods Hole Ocean. Inst.
W. Hoyt	M.S.	"Long-Distance Turbidite Correlations in the Horseshoe Abyssal Plain"	9/74	12/76	Ph.D. program Univ. of Delaware
T. Shibata	Ph.D.	"Petrology of the Oceanographer Fracture Zone (35°N 35°W)"	9/72	8/76	Okayama Univ. (Japan) (Asst. Prof.)
B. Nisbet	Ph.D.	"Structural Studies in the Northern Chester Dome of East Central Vermont"	1/72	5/76	Amoco Minerals (Australia)
M. Hoffman	M.S.	"A Study of some Petrologic and Structural Aspects of the East Dover Ultramafic Bodies, South Central Vermont"	9/72	8/75	
W. Gregg	M.S.	"Structural Studies in the Moretown and Cram Hill Units near Ludlow, Vermont"	9/71	5/75	Ph.D. program- SUNYA
J. Karson	M.S.	"Structural and Petrofabric Studies in the Lewis Hills, Western Newfoundland"	9/72	5/75	Ph.D. program- SUNYA
V. Lee	M.S.	"Petrography, Metamormorphism and Geochemistry of the Bermeja Complex and Related Rocks in Southwestern Puerto Rico, and their significance in the Evolution of the Eastern Greater Antillian Island Arc"	9/71	5/74	Private business

Name	Program	Thesis Title	Date Started	Date Completed	Present Employment
P. Anantaramam	M.S.	"Petrology of the Nemeiben Lake Ultramafic and Associated Nickel-Sulphide Deposits"	8/72	9/76	N.Y.S. (En. Con.)
D. Lang	M.S.	"Origin of the Mount Merino Chert and Shale, Middle Ordovician, Eastern New York State"	7/66	5/69	Housewife

* S.U.N.Y.A. Presidential Fellow

** N.S.F. Predoctoral Fellow

Our undergraduate students proceed from SUNYA into graduate work, geological employment, or non-geological employment (about a third in each). No systematic records have been kept of former undergraduates and their career progress. We simply do not have the office staff to cope with matters of this type, however desirable they may be.

Graduate Admissions

Students admitted to the Ph.D. program are those who have previously completed an M.S. degree or equivalent, or in a few exceptional cases, students holding only an undergraduate degree but possessed of special promise. Our policy here is governed partly by University practice with respect to competition for the S.U.N.Y.A. Presidential Fellowships. Competition for these best University positions is limited to applicants for Ph.D. programs. Since our strongest applicants (e.g. highest GRE scores) are often undergraduates without prior graduate work, we encourage them to apply for the Ph.D. program and thus become competitive for a Presidential Fellowship, even though we generally think that even the strongest students profit from doing an M.S. thesis before the Ph.D. thesis.

Our principal need on the graduate student recruiting front is to publicize our new strength in Petrology/Geochemistry and to continue to emphasize our traditional strength in Tectonics/Structural geology. This will be done partly in ways that cost no money, but we also need to issue an attractive, informative booklet on the Department which can be widely circulated. Professor Harrison has volunteered to coordinate production of such a booklet, so all we need is approximately $3,000 in supplemental funds. This will be sought as a priority item in the 1983-84 budget request soon to be prepared.

Letters from Graduates. Letters from several former students follow.

FACULTY

Membership

Full details of each faculty member's background and professional activities are given in Appendix I. Research grants are listed by year in Appendix II. A short listing of faculty membership, research interests, and courses taught follows:

P.C. Benedict (Ph.D. Zurich, 1952; Associate Professor). Undergraduate teaching, especially at the introductory level. Courses: Planet Earth, Physical Geology, Historical Geology, Environmental Geology, Paleontology.

K.C.A. Burke (Ph.D., University of London, 1953; Professor). Tectonics, world regional geology and geophysics. Courses: Tectonics, World Historical Geology, The Oceans, Fundamentals of Geology, Environmental Geology.

J.W. Delano (Ph.D., SUNY-Stony Brook, 1977; Assistant Professor). Lunar petrology/geochemistry, igneous petrology, experimental petrology. Courses: Planet Earth (new faculty member, Fall 1982).

S.E. DeLong (Ph.D., Univ. of Texas at Austin, 1971). Petrology and tectonics of oceanic crust and subduction and collision zones. Courses: Isotope Geochemistry, Fundamentals of Geology, Igneous Petrology Seminar.

T.M. Harrison (Ph.D., Australian National Univ., 1980). Application of isotopic and fission track techniques to understanding the thermal evolution of geological systems, experimental determination of trace element behavior in mantle/melt systems, and application to geologic problems. Courses: Isotope Geochemistry, Fundamentals of Geology, Geochemistry Seminar.

W.S.F. Kidd (Ph.D., Cambridge, 1974; Associate Professor). Field-based regional tectonic studies, mainly Appalachian, tectonics of Cenozoic continental collision zones. Courses: Chronology and Field Methods, Structural Geology I, Fundamentals of Geology, Sediments and Tectonics.

W.D. Means (Ph.D., Berkeley, 1960; Professor). Structural geology, deformation mechanisms and microstructure, deformation theory. Courses: Structural Geology II and III, Fundamentals of Geology, Seminar in Structural Petrology.

A.M. Miyashiro (Ph.D., Tokyo, 1953; Professor). Igneous and metamorphic petrology, continental and oceanic regional petrology. Courses: Igneous Petrology, Metamorphic Petrology, Mineralogy I, Petrography II.

G.W. Putman (Ph.D., Penn. State, 1961; Associate Professor). Igneous petrology, especially of granitic rocks, Adirondack petrology, recent tectonics of northeastern New York and adjacent areas. Courses: Petro-

graphy I, Geochemistry, Phase Equilibria, Igneous Petrology.

Workload. Typical faculty workload is two to three courses per semester, including lecture, seminar, and directed reading formats. These simple numbers do not reflect the fact that the Department also has a very high average number (by University norms) of weekly faculty contact hours due to undergraduate laboratory sections and field trips. Most faculty have found over the years that it is a pedagogical necessity to be present for much or all of laboratory and field time, if only to serve as surrogate teaching assistants. This is particularly true for the 200- and 300-level courses that introduce students to concepts with which they have had no previous experience (e.g. polarizing microscopy, petrography, field observation and mapping techniques, reading of topographic and especially geological maps). We are thus at a disadvantage compared to disciplines such as Biology or Chemistry, where many students will have had at least some prior exposure to topics and techniques, and perhaps laboratory experience as well.

In addition, eight of the nine faculty members provide research supervision for graduate and undergraduate students. All of these faculty members are also actively engaged in their own research and in pursuit of external funding therefore. All faculty are active in Department, College, or University Service.

At a national/international level, those faculty active in research are frequently sought as reviewers for journal manuscripts and grant proposals (dominantly from NSF and NASA); collectively, the present faculty of the Department reviews in excess of 160 manuscripts/proposals per year. Three faculty members (Burke, Means, Miyashiro) also serve on one or more journal editorial review boards. In addition, six faculty (Burke, DeLong, Harrison, Kidd, Means, Miyashiro) are now serving or have served within the past year,

as committee members or external examiners for doctoral students at other institutions (e.g., Australian National University, Columbia University, M.I.T., R.P.I.).

Tenure and Promotion. The Department puts forward candidates who have active research programs and a strong record of publication and external funding. No candidate advanced by the Department has been denied tenure or promotion by the University.

Staffing Changes. As discussed in the opening section on "History of the Program," two members of the tectonics/structural geology group (Fox, Dewey) have left within the past two years and been replaced by two new faculty who are nominally in the petrology/geochemistry group (Harrison, Delano). These appointments were done as part of a larger plan that had as its goal maintenance of the long-term balance of the Department between its two areas of strength. In order to bring the distribution back to equilibrium, we agreed (at the time of hiring of Delano) that the vacancy anticipated for September 1983 upon Professor Benedict's retirement should be filled in tectonics/structural geology.

Assuming that the budget flexibility of the State and the campus permit us to do so, we anticipate filling the [Benedict] position with a person having expertise in one of two areas: (1) field-based geological studies related to large-scale tectonic problems; or (2) field- and laboratory-based studies of small-scale rock structures. The former is the area of the Department's traditional strength in the geological aspects of plate tectonics; the latter is a newly-emerging area at the interface between experimental rock deformation and certain aspects of materials science. Either one offers the opportunity for further cross-fertilization between the tectonic/structural geology and petrology/geochemistry groups, though the microstructure appointment would

offer a more direct link. In addition, such an appointment would catalyze a number of us (Burke, Delano, DeLong, Harrison, Kidd, Means, new appointee) to focus our combined efforts on process-based studies (e.g. physical and chemical behavior of earth materials). This will clearly be a major area of study for the next decade, and we believe that we can again, as a Department, bring a unique geological perspective to such studies, just as we did with geological studies of plate tectonics in the previous ten years.

Salaries

Average 9-month faculty salaries paid in the Department are as follows:

Professor	$ 41,473
Associate Professor	$ 29,196
Assistant Professor	$ 24,000

SUPPORT, RESOURCES, FACILITIES

Department activities are supported at a level of about $750,000 per year, of which about 60% is State money and 40% is Federal money obtained as research grants to faculty members. (These figures include staff salaries paid by the University, the Departmental operating budget, and grant funds including overhead.)

State Funding

State funding is summarized below for the present fiscal year (Table I, Figure 2). Similar support was provided in the previous two fiscal years (Table II).

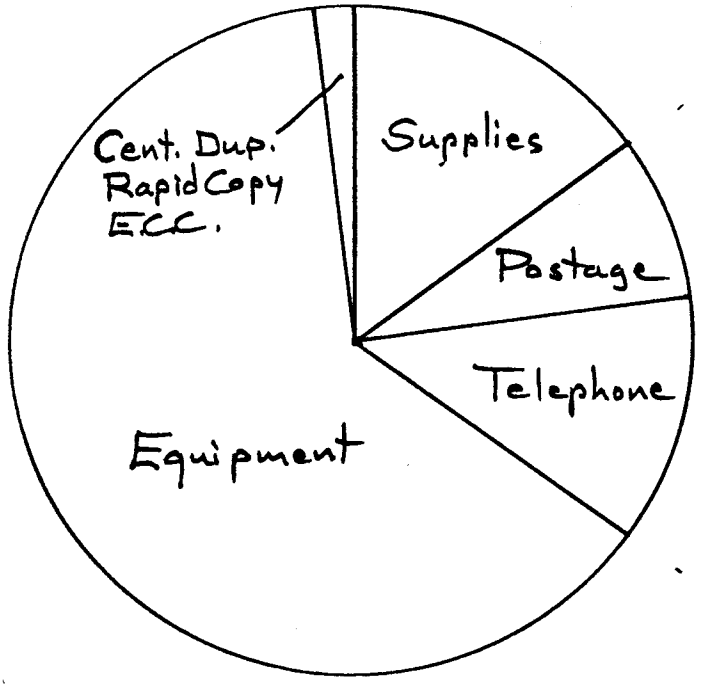
TABLE I

1982-1983 State Support

Professional Salaries	$ 325,912
Non-professional salaries	14,400
Graduate Assistantships and Fellowships	55,100
Temporary Service	3,000
Other Expenses:	
Supplies	8,824
Postage	4,565
Telephone	7,256
Equipment	37,100
Miscellaneous	1,477
TOTAL	$ 457,634

TOTAL DEPARTMENTAL BUDGET
1982-83
($457,634 Total)

FIGURE 2



OTHER EXPENSES
1982-83
($59,222 total)

TABLE II

1981-82 and 1980-81 State Support,
excluding salaries and wages

	1982-82	1980-81
Supplies	$ 10,245	$ 8,334
Postage	3,497	* --
Telephone	8,089	* --
Equipment	60,000	2,000
Miscellaneous	1,305	--

* No Departmental allocation in these categories (University Payment)

Federal Funding

The roughly 40% of Departmental support that comes from federal funding agencies (see Appendix II for details) is shown by year in Figure 3. The outlook for continued annual funding around the $200,000-$300,000 level is excellent despite tightening of the supply. We aim to explore the possibilities of industrial funding for some of our work, but have made no significant moves in this direction yet. In addition, we believe we should qualify for some industrial student support, such as the Exxon Fellowships. We have already supported a few students on industrial money, but this has always been arranged as part of consulting agreements between individual faculty members and corporate sponsors, not as Departmental support.

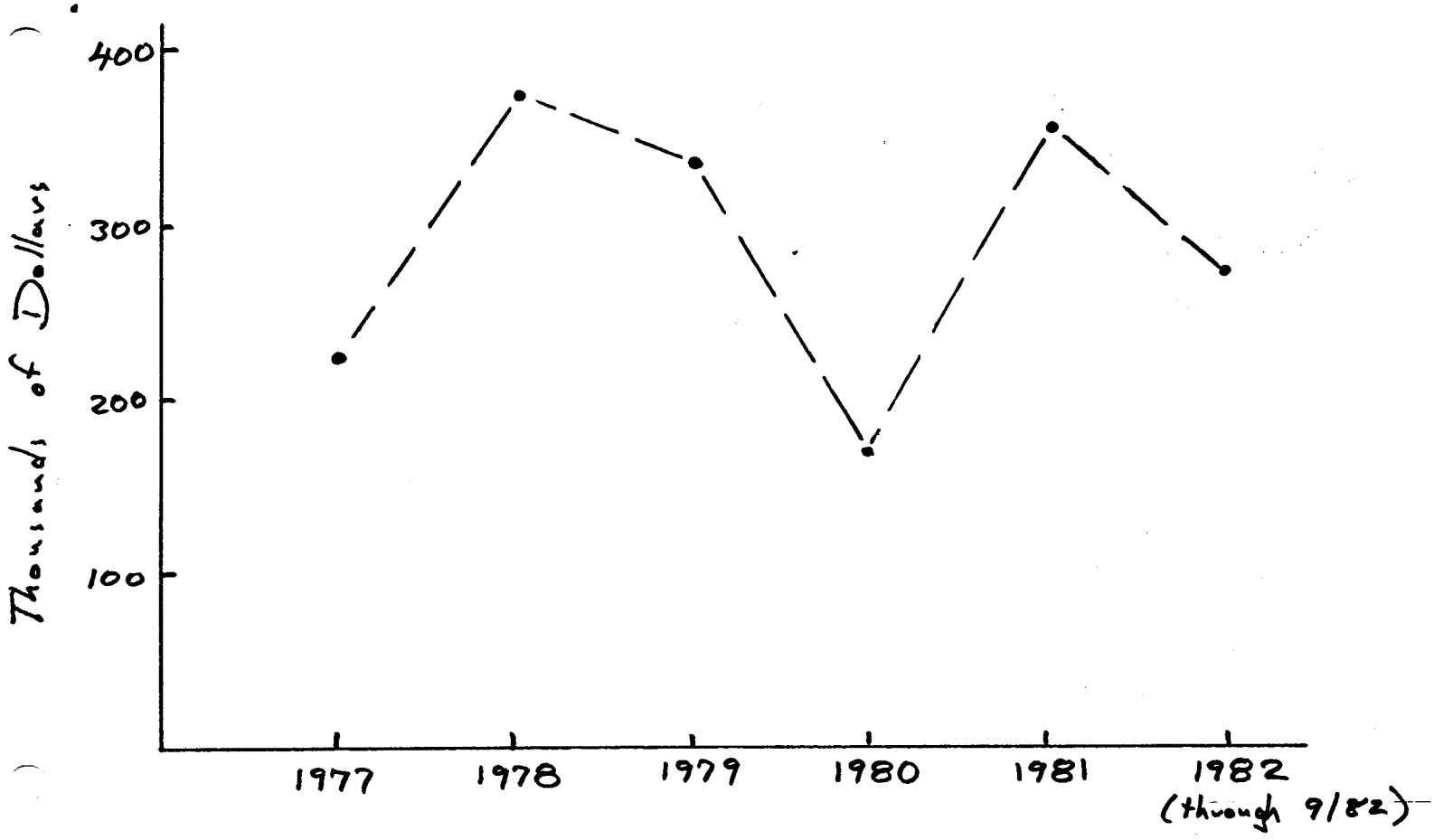


FIGURE 3 Total grants received by year

Library

(see attached Report by S. Watkins, Geology Bibliographer)

State University of New York at Albany

TO: Daniel L. Wulff, Dean, College of Science and Mathematics
Winthrop Means, Chair, Department of Geological Sciences
Leonard Lapinski, Assistant Dean for Undergraduate Studies
Robert McFarland, Assistant Dean, Graduate Studies

FROM: Joseph Z. Nitecki, Director of Libraries

DATE: September 17, 1982

SUBJECT: Review of Graduate and Undergraduate Programs in Geological Sciences

Attached please find a copy of the report evaluating library resources in support of the Graduate and Undergraduate Programs in Geological Sciences.

The report was prepared by Steve Watkins, Geological Sciences Bibliographer for the Graduate Academic Council and the Undergraduate Academic Council review of these programs this fall.

The report was requested by Robert McFarland, Assistant Dean for Graduate Studies.

JZN:lr
Attach.
cc: B. Bryant
S. Watkins

AN EVALUATION OF THE RESOURCES OF THE UNIVERSITY LIBRARIES IN SUPPORT OF THE GRADUATE AND UNDERGRADUATE PROGRAMS OF THE DEPARTMENT OF GEOLOGICAL SCIENCES

INTRODUCTION

The University Libraries collect, house, and provide access to all types of published materials in support of the research and teaching programs of the academic departments. At present the Libraries hold nearly one million monographic volumes and over 6,400 current periodical subscriptions. This evaluation considers those portions of the library collections and services that are of major interest to the Department of Geological Sciences at both the graduate and undergraduate levels of instruction.

PERIODICALS

The primary journal literature comprises an important channel for the dissemination of information on current research developments in geology. The University Libraries have current subscriptions to 171 earth sciences journals and dozens of related periodicals in interdisciplinary fields such as oceanography, physical geography, and materials science. More than 50 retrospective journal titles which have ceased publication are also present in the collections.

Two methods were used to assess the relative strength of the journal holdings. First, a citation study was conducted to compare the Libraries' holdings against journal citations from major review publications in the geological sciences. The bibliographies of 14 recent review articles from the Annual Review of Earth and Planetary Sciences (vol. 9-10, 1981-82) were checked against the Libraries' list of periodicals to determine what percentage of the cited references a student or researcher could expect to find on campus. Of the 1085 articles cited in the reviews, 992 (91.4%) were in journals held by the University Libraries. The majority of those journals lacking were oriented toward earthquake prediction and other topics which are not of central focus within the SUNYA Department of Geological Sciences. These and other peripheral titles are usually obtainable on request within one to two weeks or by a visit to a local library, such as RPI or the New York State Library (see section below on Resource Sharing).

The second evaluative measure of the periodical collection is based on citation data compiled by the publishers of Science Citation Index. Detailed findings are described in the Appendix. In selecting journals for coverage in Science Citation Index, it was determined that a relatively small number of well-established journals contain the most active core of the research literature. The data in the Appendix show that the periodical holdings of the University Libraries are very strong in those journals identified by Science Citation Index as the core publications in geology.

The University Libraries subscribe to 101 of the 137 geology serials indexed by Science Citation Index. An additional 70 current subscriptions to periodicals in the major Library of Congress classifications for geology are also received. These titles have been individually selected to represent the particular research and curricular areas within the SUNYA Department of Geological Sciences. Such journals are directly related to the subject-specific or regional coverage required by individual faculty members and students of the Department. In conjunction with

comprehensive holdings of the core journals, this enables the vast majority of information needs to be met immediately on campus, without recourse to external resources.

Two library services related to the periodicals are the Current Copy Service and the Current Periodicals Display. Through the Current Copy Service authorized personnel may request that the library send them a copy of any article in a periodical less than one year old. If the periodical is not in the collection, the Periodicals Section forwards the request to Interlibrary Loan. Photocopy costs are charged to a departmental account. The Current Periodicals Display is a separate area in the Periodicals Room where current issues of selected titles are kept for current awareness browsing. As the result of a recent campus-wide faculty survey, a separate section of science periodicals organized by call number has been established to facilitate the browsing process.

BOOKS

At present there are 8,666 volumes representing 4,194 unique titles classified in those portions of the Library of Congress classifications GB, QC, QE, TA, TN, and Z which are related to geology. These include many multivolume sets which account for the discrepancy between the number of titles and the number of volumes. Hundreds of additional volumes related to the geological sciences are present among other subject classifications within the collections, such as physics, biology, and geography.

Earth sciences books, written at the university or research level, from major English language publishers are supplied automatically through approval plans with Ballen Booksellers International and Blackwell's of Oxford, England. Additional foreign language titles are acquired selectively through the Harrassowitz Information Service. The Libraries also maintain approximately 75 standing orders for monographic sets and series, including conference and symposia proceedings sponsored by United States and international geological societies.

Titles which do not come on approval, on standing order, or through association memberships are selected for acquisition by the Geological Sciences Bibliographer. The Bibliographer works in liaison with the Department's library representative to determine faculty and student needs and to accept requests for the acquisition of specific materials. Purchases are made in accordance with the Collection Policy Statement for Geological Sciences which outlines collecting levels for the various subject areas within the field of geology.

Monographic publications in the form of technical and research reports published during 1975-80 under government contract by university, industrial, and government research centers are available in a microfiche collection produced by the National Technical Information Service (NTIS). Access to more recent government-sponsored reports is available within several days via interlibrary loan arrangements with the New York State Library or through special document delivery from NTIS. Some NTIS documents, such as the U.S. Geological Survey Open File Reports, are received as part of the federal depository collections described below.

GOVERNMENT PUBLICATIONS

The University Libraries are one of the major depository centers in eastern New York for federal, state, foreign, and international government documents. The

extensive collections of materials received through deposit arrangements comprise an important resource for the study and teaching of geology.

All major publications of the U.S. Geological Survey are received automatically, including the Bulletins, Circulars, Contributions, Professional Papers, and other individual monographs, handbooks, manuals, guides, etc. The Libraries have also been a selective depository for hard copy of certain other U.S. government publications since 1966 and have subscribed to the microprint edition of all publications listed in the Monthly Catalog since 1961. In this fashion the collections of interest to geologists have been supplemented by publications from agencies such as the Smithsonian Institution, National Bureau of Standards, U.S. Coast and Geodetic Survey, National Aeronautics and Space Administration, and National Oceanic and Atmospheric Administration

Also received through the Government Publications Unit are various map series produced by the U.S. Geological Survey. The Libraries have a substantial collection of the U.S.G.S. topographic maps and have received all newly issued or revised 7½ minute maps in the series since 1974. Other U.S.G.S. map holdings include Coal Investigations, Geophysical Investigations, Geological Quadrangle Maps, Hydrologic Investigations Atlases, Miscellaneous Investigations, and selected Mineral, Oil and Gas Investigations. A smaller collection of non-government produced maps is also housed in the Government Publications Area of the library, and additional maps are available for in-house use within the Department of Geological Sciences itself. The overall geologic map collection is due to be updated and made more comprehensive with the use of funds allocated specifically for that purpose during FY 1982-83.

Publications of the state geological surveys or their equivalent agencies are received for at least fifteen states, with emphasis on the Northeast. All major Geological Survey of Canada publications are acquired as well.

RESOURCE SHARING

The University Libraries belong to several interlibrary loan networks and consortia and have entered into cooperative acquisition agreements with other SUNY university centers and the New York State Library. Online bibliographic systems, union lists of serials, and other bibliographic verification tools are available in the Libraries for locating materials held by other institutions.

The Capital District Library Council (CDLC) is a network of local libraries (RPI, Union College, etc.) which are connected by a daily courier service. Items requested from the CDLC libraries or from the New York State Library generally arrive within one week. It is primarily from this network that occasional technical, engineering, and older titles which are needed are obtained. Faculty and students may also visit CDLC libraries and borrow materials directly from the institution through a cooperative arrangement called the CLDC Direct Access Program.

The University Libraries also have interlibrary loan access to research collections throughout the state through the New York State Interlibrary Loan network, as well as to university and research center collections nationwide and worldwide. The Libraries are a member of the Center for Research Libraries in Chicago which provides current and retrospective holdings of scientific periodicals that are not generally available from other U.S. libraries. Such services enable researchers to obtain virtually all published resources necessary to the in-depth study of any geological discipline.

LIBRARY SERVICES

Professional reference service is available 79 hours each week at the Libraries' reference desks. Library users may obtain assistance in the use of the Reference Area collection, which includes handbooks, data compilations, directories, dictionaries, guides to conference proceedings, bibliographies of the geological literature, and other reference sources. The major abstracting and indexing publications for the geological sciences, such as the Bibliography and Index of Geology and its predecessors, are housed in the Reference Area, along with numerous interdisciplinary science indexes which contain substantial references to geological topics.

An important component of reference services is the Information Retrieval Unit of the University Libraries. Trained librarians are available to conduct online computerized literature searches for requestors through Bibliographic Retrieval Services (BRS) and DIALOG Information Services. Both current awareness and retrospective searching are offered on a number of databases which index the literature of geology. Users of the service are charged only for the printing of citations and 30% of the online search costs; the remaining costs are borne by the University Libraries. The primary databases in geology are GeoRef, produced by the American Geological Institute, and GeoArchive, produced by Geosystems in London. Important interdisciplinary databases which cover the geology literature as it applies to other scientific disciplines include Aquatic Science Abstracts, CA Search (Chemical Abstracts), SciSearch (Science Citation Index), Compendex (Engineering Index), Meteorological and Geoastrophysical Abstracts, and NTIS (National Technical Information Service).

The Geological Sciences Bibliographer, in addition to selecting materials for acquisition in support of the teaching and research programs of the Department, is available to provide subject-specialized bibliographic instruction in the use of library resources.

FINANCIAL SUPPORT FOR COLLECTION DEVELOPMENT

The estimated current annual expenditures for library materials to support the programs in Geological Sciences total nearly $34,000. Indirect support from other materials in the related sciences is not included in this figure.

Periodicals	$21,723
Books	5,277
Standing Orders	2,625
Indexes and Abstracts	4,371
Total	$33,996

SUMMARY AND CONCLUSIONS

The University Libraries have a sizeable collection of books, periodicals, government documents, and other library materials which support the range of teaching and research needs of the Department of Geological Sciences from undergraduate coursework to graduate research projects. The quality and breadth of the current holdings are very good when measured against standard norms. Efforts are being made to upgrade areas such as the map collection with retrospective purchasing.

Those items which are not directly available on campus may be obtained within a reasonable period of time. A substantial financial commitment has been made to maintain the quality of the geology collections. An active involvement in the government depository programs provides a tremendous amount of additional primary research material at little or not cost to the Libraries. Although the present fiscal climate places some limitations on library personnel resources, the University Libraries are able to maintain sufficiently high levels of service in the critical areas of reference and access to the collections.

Prepared by

Steven G. Watkins
Geological Sciences Bibliographer
September 10, 1982

SW:ea
9/15/82

APPENDIX

The Institute for Scientific Information publishes an annual volume of Journal Citation Reports as part of the Science Citation Index. This volume contains detailed statistical analyses of the citation patterns and frequencies in all of their source publications. One important measure for collection evaluation is that of journal impact. The journal Impact Factor is defined in the introduction to Journal Citation Reports (JCR) as "a measure of the frequency with which the 'average cited article' in a journal has been cited in a particular year. The JCR impact factor is basically a ratio between citations and citable items published. Thus, the 1980 impact factor of journal X would be calculated by dividing the number of all the SSCI/SCI/A&HCI source journals' 1980 citations of articles journal X published in 1978 and 1979 by the total number of source items it published in 1978 and 1979." Those journals with high Impact Factors therefore represent the active "core" of the geological periodical literature.

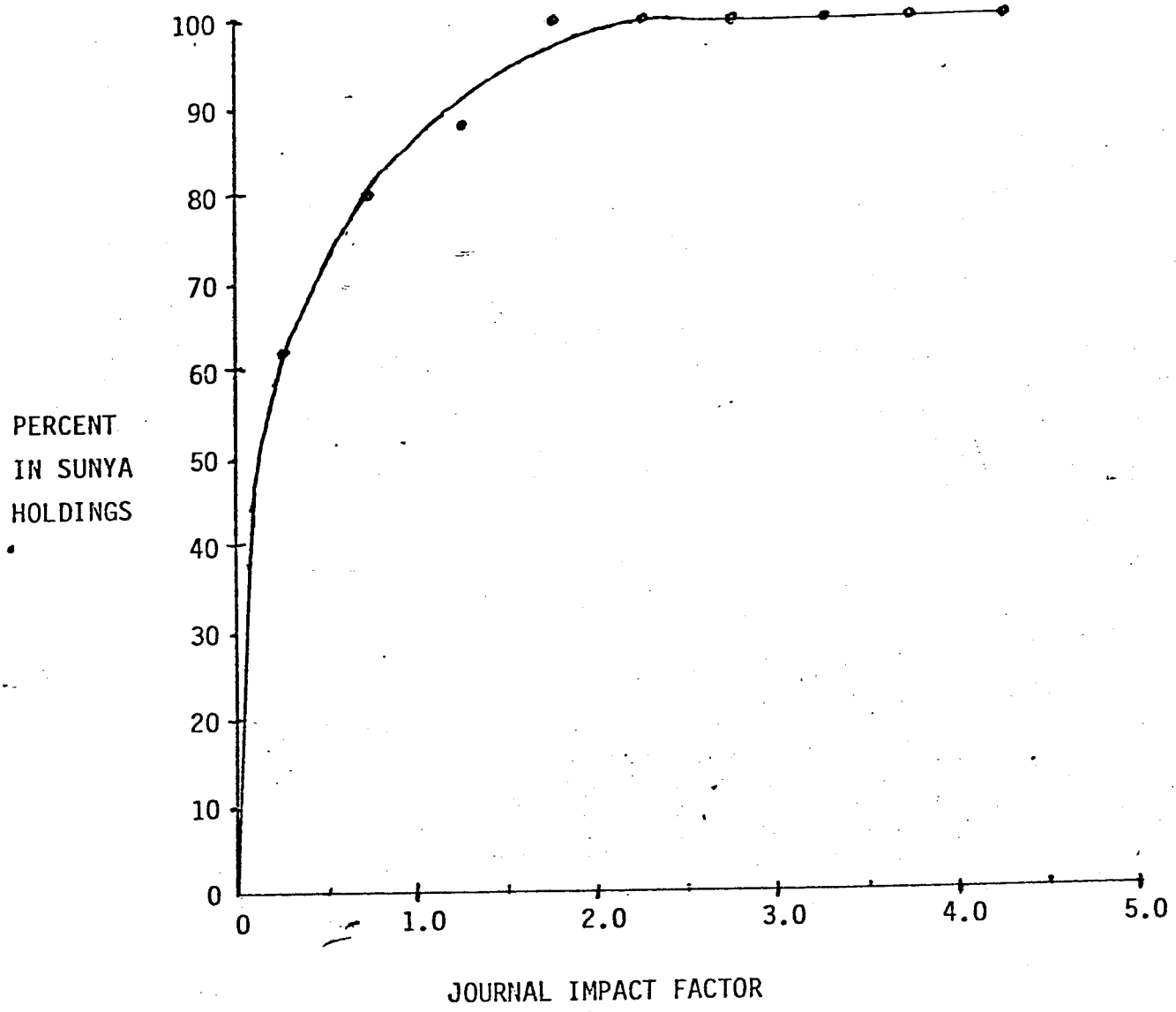
Using the section of JCR which lists journals ranked by Impact Factor and arranged by subject categories, the University Libraries' holdings were checked to ascertain the number of titles in the collection within each range of Impact Factors. The subject categories which were used are: Geology, Geosciences, Mineralogy, and Paleontology. The results are summarized in the table and graph below.

For each incremental increase in journal Impact Factor the percentage of journal titles in the Sunya library holdings is plotted. As the Impact Factor increases, representing the more important "core" geology journals, the percentage to which we hold current subscriptions rapidly approaches 100%. Therefore, the Libraries carry virtually all of the core periodicals in these fields, but subscribe more selectively to those titles of lesser importance. Despite holding only 77% of the geology journals indexed by Science Citation Index, selectivity of acquisition has resulted in a useful research collection which mirrors the publication and citation patterns of the geological disciplines.

GEOLOGY JOURNAL HOLDINGS BY SCI IMPACT FACTOR

Impact Factor	#Titles in Holdings	#Titles not in Holdings	Total # Titles	Percent in Holdings
0.0 - 0.49	23	14	37	62.2
0.5 - 0.99	24	6	30	80.0
1.0 - 1.49	15	2	17	88.2
1.5 - 1.99	11	0	11	100.0
2.0 - 2.49	4	0	4	100.0
2.5 - 2.99	1	0	1	100.0
3.0 - 3.49	1	0	1	100.0
3.5 - 3.99	1	0	1	100.0
4.0 - 4.49	1	0	1	100.0
	81	22	103	

APPENDIX (cont'd)



Laboratory and Workshop Facilities

The Department is well provided with the laboratory and workshop facilities most essential for our work. These include a general-purpose machine-shop, lapidary shop, and darkroom, as well as an electron microprobe laboratory, equipment for x-ray fluorescence, atomic absorption and x-ray diffraction analysis, a gas-source mass spectrometer laboratory, and experimental microstructural laboratory. An experimental petrology laboratory will be in operation by the end of the year. Further details of any of these facilities can be provided on request.

Like the Department faculty, our supporting technical staff is small but of high quality:

K.E. Davis (M.S., Geology, M.I.T.) is active primarily among the geochemical analytical instruments. She has independently taught several of our courses, has successfully sought N.S.F. research support, has published a number of papers in leading journals, has served as technical advisor to many students, and continues to increase her value to the Department by, for example, taking outside courses in electronics.

A.L. Stienstra (B.S., Business Administration, Empire State College, SUNY; and graduate of various machine work, design, and drafting programs, Rhode Island School of Design, Brown University, Whitin Machine Works) runs our workshop and excels at activities as diverse as precision machine work, sheet metal work, instrument maintenance, and carpentry--all of them essential in our Department. Mr. Stienstra not only supports the research and teaching activities of all faculty members, he also serves as an important link between our shop and others around the campus on which we also rely to some degree (the plumbing and electrical shops, the electronics shop, etc.).

Space

Like all groups on campus, the Department could use more space, particularly teaching space and graduate assistant office space. However, our space problems are not critical, and we have solved some of them by reconfiguration and some by temporary borrowing of space from Atmospheric Sciences. Our greatest need is for an additional undergraduate teaching room, in which teaching materials can be laid out for study outside of regularly scheduled sessions.

Evaluation

Need for a typist. Our budgetary support is adequate with one exception. We need a second State-funded secretary.

Our entire Department is served by one admirable, unflapable, efficient, but harried individual, Mrs. Diana Paton, who must simultaneously act as typist, bookkeeper, switchboard operator, student employment coordinator, travel agent, purchasing agent, records clerk, and receptionist--not to mention her duties as secretary to the Chairman. This might be tolerable in a moribund Department, but it is a serious problem in a department of our vitality, where the volume of manuscripts, proposals, and research correspondence (by faculty and students alike) is high. We have made do in the past by hiring an extra typist with grant money, but this is not always satisfactory in a small department, where the availability of funds for this particular purpose fluctuates wildly and where such funds are not always distributed evenly among users of office services.

Geology at SUNYA enjoys the lowest level of secretarial support among the science departments. Some Instructional/Classified ratios follow, for the 1981-82 fiscal year ("Instructional" positions are faculty positions.

"Classified" positions are occupied by secretaries and clerks.)

Department	Instructional/Classified Ratio
Chemistry	3.5
Physics	5.7
Biology	6.5
Atmospheric Science	8.0
Geology	8.5

We think these figures and our record as a productive department justify State support for at least an additional part-time typist or typist-clerk, or provision of a word processor.

CONCLUSIONS

1) The Department has established itself as a well-known center for research and training in the geological sciences.
2) The graduate and undergraduate teaching programs are strong, yet undergoing suitable continuing scrutiny and adjustment.
3) The faculty is expert in the fields of Tectonics/Structural Geology and Petrology/Geochemistry. Within these fields overall faculty quality is comparable to that at any leading department in the world.
4) The students are able, professional motivated, and enrolling in numbers that justify provision of the programs. Recruiting efforts are needed to attract good students to our new activities in petrology/geochemistry, and to continue to attract students to our more established programs in tectonics/structural geology.
5) Facilities and support are generally good, but a major problem exists in the area of secretarial support.
6) The outlook for the future of the Department is bright, so long as we are provided some relief as above and the upcoming vacancy on the Benedict line is authorized for refilling.