THIRTY-FIFTH ANNUAL REPORT
(June 1, 2006 – June 30, 2007)

PETERSON PLANETARIUM

submitted by

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on behalf of
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to

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June, 2007

***This is the 35th annual report since the Peterson Planetarium has been the responsibility of the Division or Departments of Physical Sciences.**

PREFACE

The University is at somewhat of a crossroad relative to Peterson Planetarium. One aspect involves fiscal considerations, and the other is the life-threatening health circumstance that the director, Ron Keith, faces.

Regarding fiscal considerations, a “capital” request was sent to the LAS dean on June 14 requesting funds to (1) replace carpet damaged by a flooding episode in mid-April, 2007, (2) enable a biennial maintenance contract to be executed with Spitz, Inc, the planetarium instrument vendor, and (3) provide funds for a system control and programming capability upgrade.

The following section will provide historical context for Peterson Planetarium and subsequent discussions.

HISTORICAL BACKGROUND

A planetarium facility was included when the Cram Science Hall wing (of the current science hall complex) was designed and opened for use in 1959. At that time administrative and program responsibility for the planetarium was with the Department of Mathematics. In conjunction with other dedications at the 1970 Homecoming (November 7, 1970), the planetarium was officially dedicated as Peterson Planetarium. (This dedication was to honor Dr. Oscar Peterson, who served as the Department of Mathematics head from 1928-1963.)

Responsibility for Peterson Planetarium shifted to the Division (now Departments) of Physical Sciences in May of 1972. This was a consequence of a number of factors. Conceptual and emphasis changes had occurred in the discipline of astronomy from classical, positional astronomy to an application of the disciplines of physics, chemistry, and geology to interpret the message of light from celestial objects. Further, the exploration of space, which began emphatically in 1957, embraced the fields of science more directly than the disciplines of mathematics and classical astronomy. Program priorities also shifted in the Department of Mathematics which caused the department to drop their astronomy course offerings concurrent with a transfer of planetarium responsibility. At the time of the shift of Planetarium responsibility, DeWayne Backhus was designated as director (since he had a background in planetary and space science and was teaching these courses in the physical sciences curriculum). Following that assignment, Backhus spent June, 1972, in residence at Abrams Planetarium, Michigan State University, to obtain a familiarity with contemporary planetarium programming. This proved to be an extremely beneficial experience; Bob Victor, Abrams staff astronomer and a feature writer for the *Sky and Telescope* magazine, provided daily supervision and directed study, and Von Del Chamberlain, then director of Abrams and later director of the Smithsonian Air and Space Museum, provided a sense of awe and inspiration.

Changes that have occurred in planetarium programming philosophy have been an expression of a larger social (and public or university) context. Fundamentally, a planetarium is a unique facility for simulating planet Earth’s spatial environment. Thus, prior to the late sixties/early seventies planetarium programming was directed toward “naked-eye” identification of stars, constellations, and planetary objects; explanations of motions of the stars, moon, sun, and planets for various time intervals; demonstrations of various aspects of celestial position, utilizing such projection devices as the celestial coordinates, celestial meridian, and the astronomical triangle; explanations of the

fundamentals of time keeping; etc. The majority of planetaria utilized their facilities for these functions; ninety percent of the programming of Peterson Planetarium was characterized by that type activity.

During the late sixties and early seventies, perhaps in response to a new social dynamic and in some cases to bolster sagging attendance, planetaria began augmenting the projection capability of the primary star projector with auxiliary projectors and the finest of the state-of-the-art audio systems. In the extreme of instances the planetarium became a weekend "theater" to project "psychedelic slides" to the beat of the "hardest" of rock music. From this a "middle-of-the-road" programming philosophy seemed to emerge. The new philosophy embraced two notions: one was to be fundamentally educational, the other dimension was to ensure a modicum of entertainment. Thus, many programs were created which were automated, with a combination of auxiliary projectors creating 360° panoramic settings of environments ranging from terrestrial to extra-terrestrial. A tight storyline was created with appropriate background music. Such programming remains credible among most in the industry, but the fundamental, classical capabilities of the planetarium remain as a legitimate programming option to achieve "educational goals."

Backhus' tenure as director terminated when he assumed an interim administrative position for the College of Liberal Arts and Sciences in June, 1986 for the 1986-87 academic year. Gerald Witten, physics/physical sciences education associate professor served as director from 1986 until he was succeeded due to retirement by Ron Keith in 1991. Keith has remained in that role until his current, disabling circumstance.

The next significant episode in the history of Peterson Planetarium occurred in early December, 1994. The rupture of a principal water line resulted in greater than five feet of water in the subgrade facility. This flooding resulted in irreparable damage to the Spitz A-2 instrument, instrument electrical systems, seats, stored materials, and other aspects of the planetarium chamber. (The salvaged remains of the instrument are now at the Kansas Cosmosphere and Space Center to be incorporated with a display.) Fortunately, monies from the so-called State of Kansas Educational Building Fund were available, and a request for $450,000 to install a new Spitz System 512 received an affirmative response. A new system was bid and installed in 1996; the 24th and 25th annual reports discuss details of this protracted process. Some utilization for astronomy/space science classes occurred in late 1996, but we resumed full planetarium programming following a reopening/rededication in January, 1997. At that time it could be considered a state-of-the-art projector and facility. However, as Ron Keith exhorted in more recent annual reports, it needs an upgrade.

The imperative to be "educational" characterizes most of ESU's on-campus programming. Programming for the visiting groups and general public has generally utilized automated programs. ESU has two of those programs that have been heavily utilized in recent years: "More Than Meets the Eye" and "Through the Eyes of Hubble." Ron Keith alludes to these and the need to diversify programming capablilty in the 34th annual report.

On behalf of students enrolled in a number of classes who benefit from the presence of Peterson Planetarium, and in the interest of informal science education and community outreach, I encourage continued support by the University and College to

maintain and sustain the educational opportunities that Peterson Planetarium can provide. An affirmative response to the "equipment request" would ensure that.

RECENT ACTIVITY IN PETERSON PLANETARIUM

I encourage reviewers to do a quick perusal of the most recent 34th annual report tendered by Ron Keith, July, 2006. It provides a perspective on the activities of a year that might be considered the "routine" of recent years.

The following sections will reflect on activity characterizing the period from June 1, 2006 through June, 2007.

USAGE AND ATTENDANCE

The Peterson Planetarium has served a variety of clientele in the past (to varying degrees from year to year); general education students; upper-division course enrollees; local community groups who request programs; the general public who attend voluntarily (and who pay a modest admission "donation" – $1.00, but at one time they only had to obtain a free ticket as a control on the limited seating capacity); and public school classes, grades K-12 (for which there is now a "flat" class donation of $10 requested). The following tables are appended relative to attendance:

- Table 1, Planetarium Usage by Group Classification, June 1, 2006 through June 30, 2007
- Table 2, Annual Attendance by Group Type/Group Description
- Table 3, Comparative Attendance Data, 1972/73 to Present

Tables 1 and 2 indicate clearly that this last year the Planetarium served primarily the campus community, and, secondarily, area elementary school youngsters. More than 70 percent of the attendees and nearly 80 percent of the numbers of programs were for University-affiliated groups, principally general education classes. (Multiple visits characterize the PH 110/111 Introduction to Space Science enrollees, for which the Planetarium is an integral course aid – a "virtual" environment.) Attendance by local community/special interest groups has plummeted, and public presentations have not been scheduled in recent years. An opportunity exists. But some upgrades must be made to achieve that, and a personnel commitment must also attend that. (I can provide additional perspectives if that is desired, and the 34th annual report has some allusions to this.)

Tables 2 and 3 also provide data from which comparisons may be made and trends may be discerned. They corroborate patterns of diminished programming as noted previously. This, again, is attributable to needs for program alternatives (as alluded to by Ron Keith in the previous annual report, number 34), and a renewed commitment for some programming capability upgrades and the commitment of personnel in order to seize the opportunity.

STAFFING

Ideally, a significant fraction of a staff position might be devoted to Peterson Planetarium. However, an attempt has been made to credit and expect about a 0.25 equivalent full-time load for the planetarium responsibility. In practice, that has not been

achievable in the past few years. With the course load normally assumed by Ron Keith, a 0.15 EFT load allocation was more tenable.

Given that, most programs for classes were presented by a faculty member with varying degrees of assistance from students, either trained undergraduates or graduate students who had as a minimum the Introduction to Space Science course. Most programming for visiting groups were "runs" of two automated programs, and were handled by student assistants. Physical Sciences faculty who handled programs in FY 2007 included Backhus (~20), Keith (~8), and Ken Thompson (~3); Marcia Schulmeister's and Rich Sleezer's classes also utilized the Planetarium. Two students, Michael Newton (~25) and Elizabeth Fitch (~8), were the two students integrally involved with the presentation of, or assistance with, programs.

Ron Keith's problematic health situation presents a concern for Planetarium oversight, maintenance and programming (in addition to a personal concern of compassion for a colleague). A student assistant(s) will be critical to even an abbreviated schedule for "external" programs. Beyond that, the following two points from the *FY 2008 Goals* section of the Physical Sciences annual report are reiterated as a conclusion to this annual report for Peterson Planetarium:

- Pending developments with Ron Keith's health, [we must] hire part-time staff and/or reassign loads as possible to cover for him part or all of the academic year; and as circumstances dictate, seek permission to retain the position, develop a position description, advertise for applicants, interview, and hire a new colleague for employment effective no later than the Fall semester of 2008.
- Related to the previous, [we must] seek funds to address needs for Peterson Planetarium and temporarily make-do with staffing of program presentations (and suspend [all outreach] programming if necessary).

CONCLUSION

Colleagues and I will anticipate imminent discussions concerning the fiscal request submitted June 14, 2007, and developments relative to Ron Keith's health situation.

Table 1
Planetarium Usage by Group Classification
Period: June 1, 2006 through June 30, 2007

Group Description	Number of Visits by Group Type	Attendance by Group	% of Total Usage by Attendance	% of Total Usage by No. of Visits
I. ESU Group Activities				
A. General Education Classes				
1. ES 110 Intro. To Earth Science	18	472	30	26
2. PS 115 Our Physical World	3	86	6	4
3. PH 110/111 Space Science	24	492	31	34
B. Upper division courses	2	21	1	3
C. Special Events (Parents' Day, Alumni Weekend, and other ESU)	7	83	5	10
Subtotal	54	1154	73	77
II. Local Community and/or Special Interest Groups				
A. Scouts and Brownies	2	62	4	3
B. Special Interest	0	0	0	0
C. Scheduled Public Programs	0	0	0	0
Subtotal	2	62	4	3
III. Public School Groups				
A. School groups				
1. Elementary	9	277	17	13
2. Middle School	3	67	4	4
3. High School	0	0	0	0
B. Special Events	2	27	2	3
Subtotal	14	371	23	20
Total	70	1587	—	—

Table 2
Recent Annual Attendance by Group Type/Group Description

Recording Period	ESU General Education	ESU Upper Division/ Graduate Classes or Special Events	Local Community/ Special Interest	Public Presentations	Public School Classes/ Teacher In-Service	Total
1972/73	1606	141	984	774	1572	5077
1973/74	1440	295	537	606	1645	4523
1974/75	1065	137	495	268	1533	3498
1975/76	1155	296	669	519	1275	3914
1976/77	827	107	684	364	1234	3216
1977/78	1163	123	659	235	1640	3820
1978/79	908	116	701	222	1787	3734
1979/80	752	157	450	435	1600	3394
1980/81	656	176	443	275	1807	3357
1981/82	669	51	756	283	1056	2815
1982/83	731	112	388	283	1018	2532
1983/84	735	21	368	170	1501	2795
1984/85	781	0	283	220	1267	2551
1985/86	1258	105	518	303	1157	3341
1986/87	1474	52	351	0	1203	3080
1987/88	1120	0	830	206	678	2834
1988/89	1115	0	837	55	985	2992
1989/90	1103	40	559	50	817	2569
1990/91	942	8	341	0	867	2158
1991/92	1170	44	170	0	577	1961
1992/93	1150	162	310	0	628	2250
1993/94	1334	81	174	271	539	2399
1994/95	548	37	120	0	104	809
1995/96	0	0	0	0	0	0
1996/97	470	49	307	420	932	2178
1997/98	913	366	427	51	1278	3035
1998/99	1035	91	261	85	1119	2591
1999/00	1029	383	169	67	984	2632
2000/01	978	256	626	120	845	2825
2001/02	1042	274	122	33	1086	2557
2002/03	1221	302	222	156	797	2698
2003/04	1101	83	81	0	597	1862
2004/05	1059	95	178	0	950	2282
2005/06	1121	133	169	0	906	2329
2006/07	1050	104	62	0	371	1587

Table 3
Comparative Attendance Data
Period: 1972/73 to Present

Reporting Period	Number of Lectures	Attendance	Average Attendance
1972/73	141	4595	32.6
1973/74	143	4241	29.7
1974/75	132	3498	26.5
1975/76	141 (160)*	3914 (4795)*	27.8
1976/77	122 (127)*	3216 (3312)*	26.4
1977/78	132	3820	28.9
1978/79	121	3734	30.9
1979/80	124	3394	27.4
1980/81	122	3357	27.5
1981/82	102	2815	27.6
1982/83	103	2532	24.6
1983/84	104	2795	26.9
1984/85	91	2551	28.0
1985/86	120	3341	27.8
1986/87	98	3080	31.4
1987/88	91	2834	31.1
1988/89	99	2992	30.2
1989/90	89	2569	28.9
1990/91	76	2158	28.4
1991/92	69	1961	28.4
1992/93	85	2250	26.5
1993/94	82	2399	29.3
1994/95	27	809	30.0
1995/96	0	0	0
1996/97	82	2178	26.6
1997/98	141	3035	21.5
1998/99	118	2591	22.0
1999/00	114	2389	23.1
2000/01	126	2825	22.4
2001/02	115	2557	22.2
2002/03	116	2698	23.3
2003/04	85	1862	21.9
2004/05	102	2282	22.4
2005/06	110	2329	21.2
2006/07	70	1587	22.7

* The data in parentheses for the mid-1970s include programs prepared and presented by Joe Ott, Division of Music, for the years indicated; those without parentheses are those programmed by the Division of Physical Sciences during those years.