2001: An AAP Odyssey

Robert J. Lefkowitz, Association of American Physicians Presidential Address

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Members of the Association and guests: The music you have just heard, the theme from Stanley Kubrick and Arthur Clarke's now-classic movie, *2001: A Space Odyssey*, has, in this millennial year, been often replayed. For those of my vintage in the audience, this film has several special associations. It was released in 1968 and I viewed it for the first time in the autumn of that year in Rockville, Maryland, a community to which I had moved several months earlier in order to begin my stint as a clinical and research associate at the NIH. I suspect that a number of you in the audience lived nearby. The film is at once a remarkable science fiction tale and an allegory about human evolution and destiny. Thinking about some of its grander themes and images has prompted me to offer today a few modest personal reflections on the unique odyssey of this association over the past 115 years — its history, evolution, and future. In this last regard I will be particularly brief, since I agree with the sage comment attributed to the Nobel Prize–winning physicist Neils Bohr who said "Prediction is very hard... *especially* regarding the *future*." Confirming this view, I will confide that ever since I first realized that I could not resist the temptation to open this address with that stirring and dramatic sound byte, I have worried that virtually nobody would be present today to hear it. The reason for this is shown in Figure 1, which is a plot of the attendance at the spring meetings since about 1990. As you can see, there has been an essentially linear decline, which projects to 0 at 2001. I'll return to this point later.

As best I can tell, every recent President of this Association has read at least three documents in preparation for delivery of this oration: the constitution drawn in 1886, James Means's (1) and A. McGehee Harvey's (2) histories of the first 100 years of the association, and a significant number of previous Presidential addresses. The combined effect of this study, no different in me, apparently, than in my predecessors, is the evocation of a deep sense of awe. I wish that each of you could take the opportunity to peruse these documents; but realistically, given the press of our busy lives, it is likely that few, other than your officers, will ever do so. To read the eloquence, erudition, wit, wisdom, and humanism of many who have ascended this podium is to be truly humbled.

The allegory of the Homeric Odyssey is a universally relevant one — as Kubrick and Arthur Clarke realized — and can as easily be applied to the life of our Association. I would like to focus for a few minutes on several elements common to many such odysseys. I believe they lie at the very heart of what this organization has been about, and what it will always be about — and that they provide a compass to help us steer our association into an uncertain future. The elements of which I speak are traditions, legacies, heroes, mentors, and callings.

I will not rehearse in any detail, today, the oft-told early history of the AAP (1, 2). It was born at a meeting of seven physicians (average age only 43), including Francis Delafield and William Osler, in the fall of 1885. The first annual meeting of the association was held in Washington in the spring of 1886. In its earliest years, the organization consisted of great clinicians with large practices, primarily internists, whose scientific forte was pathology. By the early part of the 20th century, the membership began to be more heavily represented by full-time university physicians. Beginning about 1930, and blossoming after World War II, the membership evolved to consist of physicians primarily engaged in the conduct of basic and clinical research. From 1911 on, most meetings were held in Atlantic City, and from 1941 to 1976, all of them were held there. In 1977, they moved to Washington and since the late 80s have moved among several cities. The ASCI was spun off in 1908 and met thereafter with the AAP; likewise for the AFCR, founded in 1940–41. Since 1997, the ASCI and AAP have met jointly.

Let me pick up the story from my own personal experience of these meetings. I attended my first Atlantic City meeting in 1969 and presented my first paper there in 1970. I've missed only two meetings since. It would be difficult for me to overstate the impact and importance of those early meetings on my career. Here, in one place, for several days, were all the glitterati of American academic medicine — the mythical heroes I had read and heard about.

They were there, in the flesh, listening to the same papers as me, asking

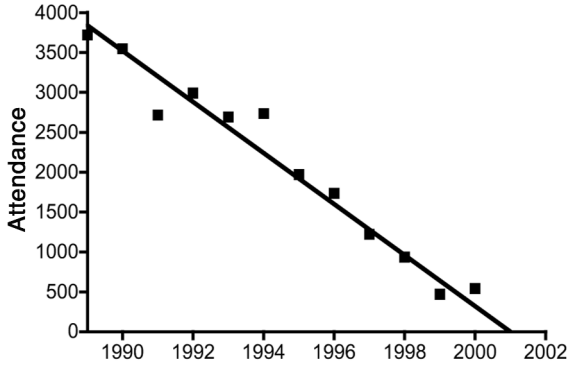

Figure 1
Total attendance at recent annual spring meetings.

1925. Hideyo Noguchi, New York.
1926. Theobald Smith, Princeton.
1927. William H. Welch, Baltimore.
1928. Victor C. Vaughan, Ann Arbor.
1929. George R. Minot, Boston.
1930. James B. Herrick, Chicago.
1931. Henry Sewall, Denver.
1932. E. P. Joslin, Boston.
1933. A. N. Richards, Philadelphia.
1934. J. J. Abel, Baltimore.
1935. Frank B. Mallory, Boston.
1936. E. R. Baldwin, Saranac Lake, NY.
1937. William H. Park, New York.
1938. Rufus Cole, Mount Kisco, NY.
1939. George H. Whipple, Rochester, NY.
1940. Frederick F. Russell, Boston.
1941. William de B. MacNider, Chapel Hill.
1942. Donald D. Van Slyke, New York.
1943. Ernest W. Goodpasture, Nashville.
1944. No award.
1945. Oswald T. Avery, New York.
1946. No award.
1947. Eugene F. DuBois, New York.
1948. Warfield T. Longcope, Lee, MA.
1949. Alphonse R. Dochez, New York.
1950. Edwards A. Park, Baltimore.
1951. James L. Gamble, Brookline, MA.
1952. Edward C. Kendall, Rochester, MN.
1953. Peyton Rous, New York.
1954. Herbert S. Gasser, New York.
1955. William C. Stadie, Philadelphia.
1956. Stanley Cobb, Cambridge, MA.
1957. Richard E. Shope, New York.
1958. Arnold R. Rich, Baltimore.
1959. Robert F. Loeb, New York.
1960. David Marine, Rehoboth, DE.
1961. O. H. Robertson, Santa Cruz.
1962. William B. Castle, Boston.
1963. John R. Paul, New Haven.
1964. J. Howard Means, Boston.
1965. Joseph T. Wearn, Brookline.
1966. Joseph C. Aub, Boston.
1967. Isaac Starr, Philadelphia.
1968. Tinsley R. Harrison, Birmingham.
1969. Dana W. Atchley, New York.
1970. Dickinson W. Richards, New York.
1971. W. Barry Wood, Jr., Baltimore.
1972. Cecil J. Watson, Minneapolis.
1973. Paul B. Beeson, Oxford, England.
1974. Maxwell M. Wintrobe, Salt Lake City.
1975. Walsh McDermott, New York.
1976. George W. Thorn, Boston.
1977. Robert H. Williams, Seattle.
1978. Maxwell Finland, Boston.
1979. Franz J. Ingelfinger, Cambridge, MA.
1980. Eugene A. Stead, Durham.
1981. A. McGehee Harvey, Baltimore.
1982. James A. Shannon, Portland.
1983. Lewis Thomas, New York.
1984. Robert W. Berliner, New Haven.
1985. Donald W. Seldin, Dallas.
1986. Lloyd H. Smith, Jr., San Francisco.
1987. Helen B. Taussig, Baltimore.
1988. Oscar D. Ratnoff, Cleveland.
1989. Maclyn McCarty, New York.
1990. Victor A. McKusick, Baltimore.
1991. James B. Wyngaarden, Wash, D.C.
1992. E. Donnall Thomas, Seattle.
1993. Arnold S. Relman, Boston.
1994. David M. Kipnis, St. Louis.
1995. Alexander Leaf, Charlestown, M.A.
1996. Robert G. Petersdorf, Seattle.
1997. Helen M. Ranney, San Diego.
1998. Eugene Braunwald, Boston.
1999. Jean D. Wilson, Dallas, TX.
2000. J. Claude Bennett, Birmingham.

Figure 2
Recipients of the Kober Medal of the Association of American Physicians.

questions, schmoosing on the boardwalk. They schmoosed at breakfast, too, at dinner, and in the lobby of Hadden Hall during and after the talks. More senior colleagues introduced me to some of them as a young man who had "potential." And what papers I heard! Every year I waited expectantly for that April issue of *Clinical Research* to arrive. And when it did, I couldn't wait to see which papers had been selected as the hottest — the ones on the main plenary sessions. As my own lab grew, I always targeted the meeting for what I considered our best work, and when, as fortunately happened on several occasions, our work was selected for plenary presentation, I drove my fellows to distraction with endless rehearsals and preparations. After all, where else could a young scientist present his or her work to an audience of several thousand people?

To this day I can vividly recall many of the plenary presentations I heard, all obviously prepared with the same meticulous attention to detail. For example, I remember Janet Rowley announcing the chromosomal translocation responsible for the Philadelphia chromosome in 1973, Mike Brown and Joe Goldstein announcing the discovery of the LDL receptor defect in familial hypercholesterolemia in 1974, and Stan Prusiner discussing prion proteins in scrapie in 1985, to mention just a few.

And this of course had been going on for decades. Can you just imagine what it must have been like when, on the very same program in 1949, Kendall and Hench announced the amazingly beneficial action of cortisone in rheumatoid arthritis and acute rheumatic fever, and Randolph West reported that a pure crystalline preparation of vitamin B12 was effective in inducing complete hematological and neurological remission in pernicious anemia? Or to have heard, at the 1922 meeting, J.J.R. Macleod presenting his paper, coauthored with Banting and Best, announcing the discovery of insulin? Or hundreds of others?

Another aspect of our meeting which, historically, has had a profound effect on me has been the presentation of the Kober Medal. Figure 2 lists the recipients of this award. Take just a moment to scan it. This is truly our pantheon of heroes. Originally presented from 1925 to 1930 by Dr. Kober himself, thereafter the tradition has grown up of having some colleague of the winner who is particularly knowledgeable about the scientific and personal aspects of the awardee make the presentation. These extensively documented orations have long since represented one of the highlights of our meeting. They put our heroes on display, and bring them to life.

As we move forward into this new millennium, much has changed about our profession, about the way, and by whom, biomedical research is performed, and about the nature of this meeting. A frequent topic of discussion from this podium for a number of years has been the declining number of physician-scientists in the overall pool of biomedical researchers. A striking example of this phenomenon, and one which has particular significance to me, concerns the Howard Hughes Medical Institute, which has become one of the largest and most successful nongovernmental organizations supporting biomedical research. Hughes first conceived of the institute as early as 1946, after surviving a near-fatal plane crash (3). Three of his four original Medical Advisory Board members belonged to the AAP. As shown in Figure 3, the first six investigators were appointed in 1951 and all were physician-scientists. By 1957 the institute had grown to 47 investigators, and remained at about this size for many years. Thus, 20 years later in 1976, when I was fortunate enough to be appointed as an investigator of the Institute, there were still only 52 investigators. Of

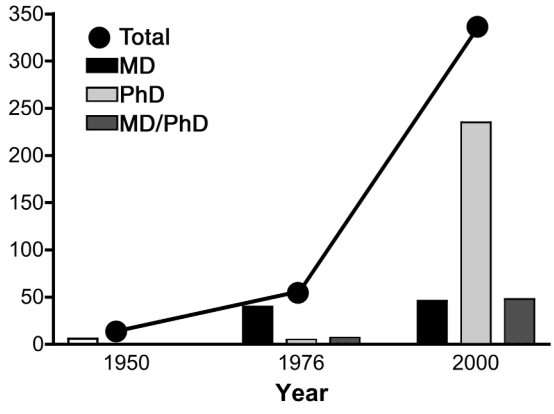

Figure 3
Investigators of the Howard Hughes Medical Institute.

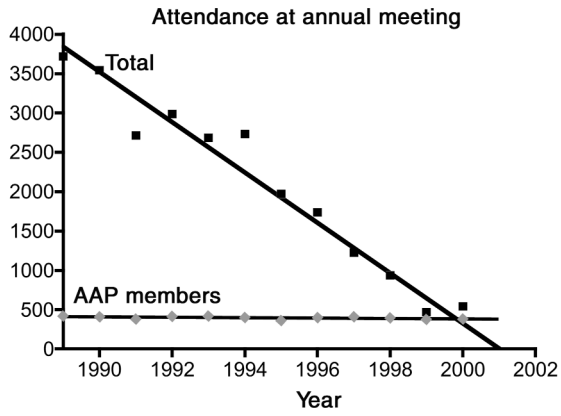

Figure 4
Total and AAP member attendance at recent annual spring meetings.

these, 40 of us had an MD degree (~80%), seven were MD/PhDs, and only five (or about 10%) held a PhD degree. Today, some 25 years later, the Institute has grown tremendously to a total of about 340 investigators. Of these, only 46 hold an MD degree (14%), 48 have an MD/PhD (14%), and 235 or 70% have a PhD. Thus, there has been almost a complete inversion of the ratio of MD/PhD's — and despite a sevenfold increase in the number of investigators, the absolute number of MD investigators remains at about the same number as 25 years ago. Another indication of the altered status and roles of committed physician investigators is to be found in the percentage of Chairs of Medicine who are AAP members. Only 15 years ago, this was more than half (52%), whereas today it is barely a third (34%).

Perhaps nowhere are the changes which have occurred in academic medicine more apparent than at this meeting. Ironically, in his history of the Association (1), James Means describes how members in the 1940s decried the fact that the meeting was growing too large. One member wrote that "there is something inhibiting, I am afraid, about the large number of people...." And many members were described as "longing nostalgically for the days of smaller meetings."

In contrast, over the past decade, there has been much angst over the rapidly shrinking size of this meeting, as I illustrated earlier. There is another dimension, however, to this issue, which is not apparent simply from the overall attendance figures, and this is shown in Figure 4. You've already seen this graph of declining total attendance at the meeting. But here are added the attendance figures for AAP members. The striking feature is that throughout this period of declining total attendance, the number of our members attending the meeting has remained remarkably constant, at just about 400. Moreover, almost all of these attend the annual dinner. The stability of this figure, I believe, augurs well at least for our near-term future.

Two other striking changes have occurred in the format of the meeting over the past several years. Since 1997 we have met only with the ASCI and without the AFCR, now known as the American Federation for Medical Research. This has removed almost all of the younger aspiring trainees and faculty from our ranks. Secondly, there are no longer oral reports of original, previously unpublished research papers.

Given these striking changes, what can we do to assure the continuance of this grand association and its annual meeting in a manner that remains true to its original goals, but which responds to the evolving reality of our circumstances as physician-scientists? First, we clearly need to accept these realities. For example, we cannot hope to attract presentations of previously unpublished breakthrough work, given the much larger subspecialty meetings and other meetings which have flourished in recent years. Attendance at several of these is now numbered in the 10,000–30,000 range. We can, however, maintain a program of surpassing scientific excellence and contemporaneity simply by drawing on our membership for invited presentations in important cutting-edge areas of medical research.

Second, we need to consider that the fates of the physician-scientist career path and of this association are inextricably linked. Without successive generations of physician-scientists, there would eventually be no AAP. On the other hand, the continuing success of this Association can do much to assure the viability and success of the physician-scientist career choice.

The annual meeting of this Association must remain a major vehicle for transmitting the legacy and traditions of our professional culture from one generation to the next as it has been for more than a century. What are some of these traditions? They are, of course, rooted in the most fundamental goals and aspirations of the organization. These goals were set forth by the founders:

1) "The advancement of scientific and practical medicine" — Constitution, 1886

2) "A society ... in which we could meet our fellows in the same line of work" — William Osler.

3) "An association in which there will be no medical politics and no medical ethics; an association in which no one will care who are the officers, and who are not; in which we will not ask from which part of the country a man comes, but whether he has done good work, and will do more; whether he has something to say worth hearing, and can say it. We want an association composed of members, each one of whom is able to contribute something real to the common stock of knowledge, and where he who reads such a contribution feels sure of a discriminating audience.... We also want a society in which we can *learn* something." — Francis Delafield, Presidential Address, 1886.

These three fundamental goals — the exchange of information about state-of-the-art advances in scientific medicine; the election and honoring of physicians who have done outstanding work; and the provision of a convivial setting in which to meet and interact with our peers — have not changed in the 115 years since the founding of the organization.

That the needs of the membership continue to be met is attested to by several observations: the constancy of attendance; the outstanding quality

and number of nominees each year; and the warmth, enthusiasm, and fellowship which characterize our annual social event — the cocktail party and dinner. It reminds me a bit of Neil Simon's play, "Same Time, Next Year." It's quite remarkable how our members, many seeing one another only this one time each year, genuinely experience each other as good friends and colleagues and can't wait to catch up on each other's lives and careers, fortunes and misfortunes since the last meeting. As one reads the history of the Association, this has apparently always been the case.

What makes all this work, of course, is that we all share in the traditions, customs, and values represented by the AAP. And this is so because most of us have been attending these meetings for years, or rather decades. I'm sure that many of you can recall your first experiences of this meeting, and how important they were to you in the formative stage of your career. And this brings me to the one aspect of our meeting which I believe we must address: the absence of the very youngest members of our profession — those who might aspire to membership years in the future.

These considerations suggest that in the years ahead our Association must focus intensely on an additional goal, that of actively nurturing the physician-scientists who will be our future members. I believe that we can and must use our annual meeting as a vehicle to this end.

The essence of tradition, of a legacy, is the handing down of values and customs, from one generation to the next. Historically, through much of the 20th century, this is precisely what transpired at this meeting. And from these shared experiences grew the collective memory, loyalty, and constancy which is reflected in the very steady and enthusiastic participation of our membership in this annual pilgrimage. But to continue this, we must find ways of bringing younger physician-scientists and trainees who might aspire to this vocation to the meeting. This year the ASCI and AAP are expanding a travel grant award program for trainees, and a number of us have brought more junior colleagues along to introduce them to these annual rites.

At a time when careers in investigation seem to hold somewhat less attraction for our students, house staff, and fellows, I believe that the experience of this meeting can serve to strongly reinforce stirrings or leanings in this direction. Human nature craves heroes, and role models — and we have them in abundance. Let me provide a personal example. Last year I brought with me to this meeting a young man who was working in my lab for a year. He's a very talented fellow who had finished medical school at Hopkins the previous year, and as a part of the "Four Schools Program" was taking a year off for research before starting his internship. He was clearly considering an academic career path. I told him to just hang with me and follow me around. Over the next couple of days, I introduced him to many of my friends and colleagues here, much as I had been introduced 30 years ago, to people whose names, reputations, and accomplishments were, of course, legendary to him. Many engaged him in substantive conversations. One particularly noteworthy encounter was with Don Seldin, who regaled him for an extended period. This student later told me that for him, the experience of the meeting was a defining one. He no longer had any doubts about his future direction; he aspired to be like the people he had met at the meeting. He's now completing his internship at Hopkins, making plans for fellowship training. I speak to him periodically. He's still talking about the meeting and still talking about his encounter with Don Seldin.

I think the lesson in this vignette is clear. We all had similar experiences at this meeting years ago, when the format of necessity brought together the generations. Such intergenerational encounters, in the setting of a meeting like ours, can be magical and potentially very powerful. The choice of a career as a physician-scientist is often a difficult one, and it's clearly right for only a small fraction of physicians. Attendance at our meeting can help young physicians develop and solidify the resolve to pursue such a path, just as it did for us years ago.

Identification with their heroes, mentors, and role models is strengthened by the opportunity to interact at close quarters with this group; to share experiences, aspirations, and values — and also traditions. This aspect is further supported by maintaining certain constants in our format — such as the Kober presentations, the dinner, and, if at all possible, the same location for the meeting each year.

I think the concept of a calling or a vocation is relevant here. Virtually all of us, at some relatively early stage of our lives, as children or young adults, felt a calling to the medical profession. In my own case, as perhaps with many of you, my earliest aspiration was simply to practice medicine, not to do research. This was based on exposure to several obvious role models, physicians who cared for my family, and medical fiction which I devoured in large quantities. Only later, through the felicitous exposure to academic physicians on rounds, and research experiences at the NIH and the MGH, did I first hear, and then heed, an insistent call to science which has guided my career ever since.

There is a story I like to tell about a colleague of mine at Duke who took up jogging in his thirties, as part of a program to stop smoking. Rather quickly it became clear to him and his compatriots that he was possessed of an uncommon ability, a true gift for long-distance running. Within a few years he was competing for the US National Masters marathon championship, which he won at age 40, setting a world record of 2 hours, 21 minutes. He also thereby qualified for the Olympic trials. The point of the story is that he was in his thirties before he even realized the gift that he possessed and could make the decision to exploit it. This would never have happened at all if he hadn't been exposed to running at some point.

I believe the same is true of science: without exposure to the experience of research and discovery in an appropriate and supportive environment, many young physicians and students, possessed of real gifts for scientific investigation, will never hear the call. So we must provide that exposure to as many of them as possible. We can do this in several ways: first, by making sure that significant time for research is incorporated into both medical school (as we do at Duke) and postgraduate programs; second, by making sure that we serve as mentors for such programs and, in so doing, offer a nurturing, supportive, and optimistic view of the physician-scientist career path to young trainees and to junior faculty. We need to share with them our passion for the scientific basis of medicine and let them experience,

through observing us, just how gratifying and fulfilling this career choice can be. Alas, I have on too many occasions of late interviewed prospective fellows or house officers who have been soured on a research career by pessimistic or disgruntled mentors.

We can share our enthusiasm and excitement about research in several venues: in our laboratories; in patient-oriented discussions at rounds and conferences of various types; and — most germane to this discussion — at this meeting.

There is nothing else like this meeting. Whatever exposure these young physicians may have to physician-scientists at their home institutions, or at subspecialty meetings, in no other place do so many of the luminaries of academic medicine regularly gather together. Here is a remarkable opportunity to expose potential young academicians to the assembled heroes, mentors, and role models that they have heard and read about; for them to experience, in concentrated form, the excitement, vitality, and values of scientific medicine and of its major personalities. Such experiences, I believe, can do much to kindle and fan in them the same flame that has burned in each of us and in our predecessors.

If we can successfully reincorporate this element of collective mentoring and role modeling back into our annual meeting, we will have taken a giant stride toward assuring that our Association remains as vibrant, self-renewing, and centrally connected to the evolving history of medicine in the coming century as it has been in the one just past — and so the AAP odyssey will continue.

1. Means, J.H. 1961. *The Association of American Physicians: its first seventy-five years*. McGraw Hill. New York, New York, USA. 295 pp.
2. Harvey, A.M. 1986. *The Association of American Physicians 1886-1986: a century of progress in medical science.* Waverly Press Inc. Baltimore, Maryland, USA. 680 pp.
3. 1999. *A twentieth century history*. Howard Hughes Medical Institute. Chevy Chase, Maryland, USA. 48 pp.