

Memories of Alston Householder (1904-1993)

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How the Gatlinburgs came about

The idea of a Symposium on Matrix Computations came up during the Ann Arbor Summer Session in 1960, when a group of people including Alston Householder, the Todds, Wallace Givens, George Forsythe, Dick Varga, Jim Wilkinson and I happened to be assembled at the Old German's Inn. In due course -- nine month later -- the first Gatlinburg Symposium was held in 1961, April 24-29. I was visiting Oak Ridge National Laboratory just at the time, and Alston asked me to help him with the local organization. I had not been in Gatlinburg before; on my first visit to Oak Ridge in 1957 I had only seen, from Knoxville Airport, the Smokey Mountains in the usual haze. Coming into the mountain, just at the time when blossoming started, made a deep impression on me -- in Mainz, in the Rhine valley, I was used to this, but the common picture a European has of America is so much dominated by wide plains, prairies and buffalos, terribly hot in the summer and freezingly cold in the winter, that Gatlinburg came as a complete surprise. My fascination was also influenced by the event. A group of Numerical Analysts -- or should I more properly say Numerical Algebraists -- from places all over the world came together in the Mountain View Hotel for a genuine Working Conference, very favorably contrasting the mammoth congresses. This was Alston's big idea, and he convinced SIAM, NSF, AEC, and the Oak Ridge National Laboratory, which we usually called Mr. Carbide, that it was worth trying.

My first steps in the Golden West

Maybe I should report on how I came to know Alston. I met him for the first time in October 1955, in a national meeting on computer use organized by Professor Alwin Walther in Darmstadt, Germany. Alston gave a lecture with the title "Numerical Mathematics from the viewpoint of electronic digital computers". A reprint of this paper which was published in an obscure German Journal ("Nachrichtentechnische Fachberichte") can be found in the appendix. It gives a short, remarkably clear listing of the essentials of Numerical Mathematics. This was Alston's admirable style.

When in 1957 I had a chance to visit the important places in the U.S.A. I quite naturally included Oak Ridge in my wish list, next to UCLA-INA (where I met George Forsythe), RAND Corporation, Wayne State University Detroit (where Wallace Givens just held a famous Conference on Matrix Computations), Ann Arbor (where I met John Carr), Argonne National Laboratory (where I met Moll Flanders), University of Illinois Digital Computer Laboratory (where I met Abe Taub), National Bureau of Standards, Office of Naval Research, UNIVAC (where I met Grace Hopper and John Mauchly), IBM, Bell Labs (where I met Richard Hamming), MIT (where I met Howard Aiken). It was a tremendous seven weeks, from August 16, to October 5, 1957. I met many more people than I had planned, among others Richard Courant, Eugene Isaacson, John McPherson, H. F. Buckner, Ky Fan, Gertrude Blanch, Evelyn Frank. I learned to appreciate American hospitality. My transportation over the Atlantic had been arranged for by Military Air Transport System and since the Office of Naval Research was sponsoring it, I was even carried with the Generals Machine. Quite fittingly, when I arrived on my flight back in Francfort, I was greeted by the news that the Russians had started the Sputnik.

I made a few more trips to the U.S.A. In April 1958 I was contacting an ACM group on behalf of our proposals that led to ALGOL 58. In September 1959 I stayed for a while with Alston

Householder, in 1960 I met him and a few others at the Ann Arbor Summer Session. In turn, Alston and his wife Belle visited us in Mainz in August 1962 on their way to the Munich IFIP Congress.

The next Gatlinburgs.

After the first Gatlinburg Symposium, I took part in several others. The second one was held October 21-26, 1963, short after I had accepted a professorship at Munich and had returned to my home town. While the second meeting dealt with approximations, the third and all the others coming dealt again with matrix calculations. Gatlinburg III took place April 13-17, 1964. A photograph showing Jim Wilkinson, Wallace Givens, George Forsythe, Alston Householder, Peter Henrici, and myself has been reprinted in the "Users Guide to MATLAB 4.2"; a copy can be found in the appendix. In May 1964, Alston visited us in Munich, where he received a Honorary Doctorate. He came again in the summer 1965, when Richard Varga, invited on a Guest Professorship, also stayed for a quarter. This was the time when my scientific collaboration with Alston came to a peak.

There was a longer wait for Gatlinburg IV. In mid-August 1966, I was with Alston at the International Congress of Mathematicians in Moscow, where -- by the way -- we met Sobolew and Kantorovic. We went together with Jim Wilkinson to the home of Tychonoff who treated us with Mulberry liquor in an unforgettable way. Immediately following there was a matrix computations symposium organized by Rigal in Besancon, a kind of alternative Gatlinburg III. In the first quarter of 1967, I was a guest professor at Stanford University and visited together with my wife Irene Alston and Belle on my way home.

Gatlinburg IV then took place April 13-19, 1969. Mr. Carbide supported us again in a grand way. The Cocktail parties were held at the swimming pool which so that the liquor could easily be dumped into the basin if the police raided the hotel (Tennessee was a dry state!). Then Alston retired from the Oak Ridge National Laboratory, and although he stayed on in the area, accepting a professorship at the University of Tennessee, a new location for a Gatlinburg V had to be found. Richard Varga succeeded in doing so. The meeting took place June 4-10, 1972 at Los Alamos with the local support of Nick Metropolis. It was again a great success.

Gatlinburg goes Overseas.

Once the meetings had moved away from Gatlinburg, it was time to think also of having a Gatlinburg somewhere in Europe. France, which was very attractive, was not a candidate because of the recent Besancon meeting, and England did not work out. But in Munich in 1973 the President of the Bavarian Academy of Sciences was very open-minded and had good contacts to the Stifterverband fur die Deutsche Wissenschaft, a sort of German NSF. Thus, I was able to arrange for a Gatlinburg VI at the Kurhotel Enzensberg in Hopfen am See, a small resort place at the foothills of the Bavarian Alps, quite similar to Gatlinburg in Tennessee, but now with snow instead of Dogwoods and Mountain Laurels. The meeting was held December 15-22, 1974. I was remarried then, and my wife Hildegard, a mathematician, took part. It was a very happy time for me, and I was in such a good mood that I even played tricks on Olga Tausky-Todd, explaining to her that the "Kurzentrums" meant a short piece (a "Trum" in Bavarian dialect) of wood.

In 1977, Gene Golub took the meeting back to the U.S.A. Gatlinburg VII was held December 12-16, 1977 in Asilomar. It was a wonderful place and thanks to Gene gave a lasting impression. In 1981 Jim Wilkinson and Leslie Fox moved the meeting to Oxford, England. This was

for a while the last Gatlinburg meeting I visited. Around the middle of the seventies I had reoriented the center of my activity towards programming languages and programming methodology, as a consequence of my building up a Computer Science department in Munich. Gatlinburg IX took place in 1984 at Waterloo, Canada, organized by J. A. George; Gatlinburg X in 1987 at Fairfield Glades, U.S.A., organized by Pete Stewart (Alston attended it); Gatlinburg XI in 1990 at Tylosand, Sweden, organized by Ake Bjork.

All this time, Alston was no longer active, but he was the soul of the Gatlinburgs, which had come to be established in a regular 3-year cycle. Whenever I came to the West Coast, and this was quite regularly the case in the eighties due to a cooperation I had with IBM at Santa Teresa Lab, I visited Alston Householder at Malibu, where he lived, near to his son John and his daughter Jackie, after his wife Belle deceased in 1975. His home became almost a second home place to me. His son John wrote me once, that his family considered me to be Alston's best friend. I was very pleased and very proud of this.

Alston gets remarried.

Alston came to visit my wife Hildegard and me from time to time in our country house near Munich and in our apartment in town. At one of these occasions Alston met Heidi Vogg, Hildegard's sister. Shortly after, Heidi was run over by a car and severely injured; her recovery took more than a year. During this time, a romance started between Alston and Heidi, and they were married in spring 1984. Heidi was a great help to Alston, whose health was getting weaker, and Alston was a man who could give Heidi stability and warmth.

Alston dies.

In June 1993, Alston and Heidi came to the Gatlinburg XII meeting at Lake Arrowhead, which was organized by Gene Golub and T.F. Chan. They enjoyed it tremendously. Three weeks later, on July 4, 1993, we received the terrible message that Alston had died of a heart attack. Although it was not completely unexpected, there was no special indication of an acute danger. Alston was 90 years old. He had had a full life, with many friends and people who admired him. He was an American in the best sense of the word, liberal and socially conscious. Yet he was a cosmopolitan with a thorough knowledge of foreign languages and cultures. He was a mathematician of distinction. Above all he was a friendly human being. We miss him very much.

The Gatlinburgs go on

The Gatlinburg Symposia on Matrix Calculations have a prehistory that should not be forgotten. The "Conference on Matrix Computations" Wallace Givens organized in 1957, has sometimes been called Gatlinburg 0. But already in 1951 Olga Taussky-Todd (1906-1995) had organized on the UCLA campus a symposium on "Simultaneous Linear Equations and the Determination of Eigenvalues". In these days there were exactly two electronic computers of the modern generation in operation in the U.S.A., but quite a number were soon to follow. Matrix calculations have been a testbed for the development of the computer.

A unique feature of the Gatlinburgs is that there is no formal organization responsible for them; there is, as Alston once put it, not even a copyright on the name. In 1974, Alston, in SIAM review, discussed and defended the character of the Gatlinburgs as "closed" meetings in mathematics. Alston wrote "Admittedly, no committee, however constituted, can hope that its selections will be the best possible". But with a truly international organizing committee, it is possible to come close to this aim. The Gatlinburgs have shown this so

far, and as long as they continue to bring the elite of Numerical Algebra together, they will continue. Meanwhile, I may express the thanks of the people assembled here to the International Committee, chaired by Dianne O'Leary and to the local organizers of Gatlinburg XIII, Walter Gander and Martin Gutknecht, for their excellent job.