



ALTADENA HERITAGE NEWSLETTER

Big Science in Altadena

ADVOCACY AND
PRESERVATION

By Mark Goldschmidt, newsletter editor

In this issue of our Newsletter we celebrate Altadena's scientific heritage, and to that end we've gathered a few stories to recall what it was like here in the scientific community during the second half of the 20th century. When World War II was finally over and won, Southern California was flooded with people, many with GI Bill education and housing benefits, looking to get on with living a good life. At Caltech young men were eager to leave the war behind and move forward with important, exciting life work – solving the great puzzles of the universe, filling the voids in human knowledge, building new and cutting-edge machines.

So many scientists have lived in Altadena. Some were stars like Linus Pauling, Richard Feynman, William Pickering and Kip Thorne (whose work inspired the current film *Interstellar*) – and many, many others less famous. There is no way we could compile anything more than a fragmentary list; we have no idea, even, of the number of Nobel laureates who made this community their home. Things haven't changed much; the person standing in line with you at the bank may be pondering some nagging problem of high-energy physics, and the bleary-eyed lady buying peaches at the farmers market may be on Mars time, having just gotten off driving a rover on the red planet. All these big thinkers working on incredibly difficult problems have

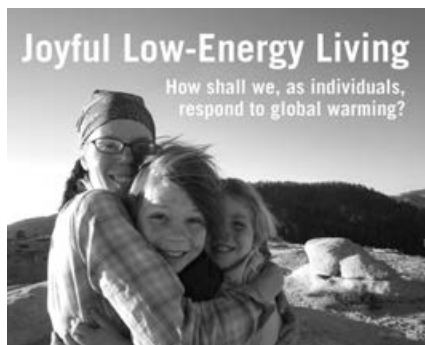


The Suicide Squad in the Arroyo Seco some time before the 2nd World War (see page 10)

endowed Altadena with a certain fame and connected us to a worldwide network.

The people working in Big Science, the research scientists and engineers and technicians, of course, but equally the planners, the support staff, the coordinators, the consultants, the grant writers and the tireless searchers for funding – individually and as a group they make good citizens and are nice to have as neighbors. They are an engaged, responsible, highly educated (that goes without saying) and a markedly artistic bunch.

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**Altadena:
Heritage of Abundance**

7 pm Thursday,
November 20, 2014
Altadena Community
Center
730 E. Altadena Drive



**Save the Date!
Holiday
Celebration
Zorthian Ranch
December 14, 2014
Noon - 4 p.m.**

Letter from the Chair

Dear Altadena Heritage Members,

This edition of our Newsletter comes in response to member Mike Simons' suggestion we publish a newsletter about the scientists of Altadena. Situated as we are between Caltech and JPL, we feel ourselves historically lucky to have and have had as neighbors so many scientists, engineers, and assorted deep thinkers pondering the cosmos, exploring deep space, and working on important scientific problems. Our community has been enriched by this proximity, as has Altadena Heritage's Board with JPL alumni members Rich Benson and Richard Davies.



What a year 2014 has been, thanks to all of our Board and general members. We still have two more events to enjoy before year's end. Our annual Members' Meeting and Holiday Celebration will be a gloriously rustic affair at the Zorthian Ranch (look for your invitation in the mail). Please consider bringing a friend to help us build Altadena Heritage — memberships will be available at the door! And coming up this month, the final program in this year's sustainability series will feature JPL climate scientist and Altadenan Peter Kalmus. Peter will explain how he decreased his energy footprint and will share the joys of low-energy living at the Community Center, November 20th at 7 p.m. He will also show how to crunch the numbers to calculate your own energy footprint; having a measurement allows a personal response to the overwhelmingness of climate change.

This is the last of six evenings that Altadena Heritage will have hosted at the Community Center this year. Several focused on water and the drought, and included great films, presentations, and discussions. We also explored Altadena history, our trail system, and offered Breadmaking 101 with a master baker. Special thanks go to Board Member Marietta Kruells, the main motivator behind this series, who not only lined up most of the films and speakers, but also brought her popcorn machine!

We have plans to continue our Sustainability Series in 2015. We will be contacting landscape designers to present aesthetically pleasing solutions to the problem of what to do once you've removed or reduced your lawn. A forum on the debate over extending the Long Beach Freeway, which would impact Altadena dramatically, is also planned. We're open to member suggestions, so please contact us at altadenaheritage@earthlink.net with your ideas, or drop us a line at 730 E. Altadena Drive.

A huge, years-long goal of Altadena Heritage was reached in 2014 under the leadership of board member Linda World. Linda led the committee that finally migrated our architectural database to a stable and user-friendly platform from the original Paradox program. Heritage was way ahead of its time in early 1990s when we gathered data on Altadena homes built before 1940 and other significant buildings. Back then, however, there was no way to know that Paradox would not survive the software wars. While we have grappled with this problem for years, it was Linda's committee, including Heritage Board Member and Archives Manager Alyssa

Ribiero, members Tom Wolfe (programmer), Dick Rubin (Paradox expert), with assistance from Laura Stalker and Jennie Ly, who did the work and finally cracked the nut. Our new database is currently being tested and you will hear more about it next year.

Another important aspect of our work was advanced in 2014 by Alyssa Ribiero, recent U.S. History Ph.D., who became Archives Manager at the end of last year. She established regular office hours, better organized our holdings, and assisted many residents in researching Altadena homes. Contact her at our email address to see what we might have on your house, or if you'd like to volunteer to help with

our archives.

We also need to thank Board Members John Zoraster and Marietta Kruells who have improved our record keeping and financial tracking by taking a team approach. We are striving to improve our budgeting process to better envision and plan for future projects.

Altadena Heritage is proud that membership has increased a bit this year — enabling us to help fund more important community projects: the new landscaping of the public right of way at Altadena's Community Garden at Lincoln and Palm, and helping to renew the parcel tax supporting our independent library system. We took financial responsibility for maintaining Old Marengo Park, pruned up the trees, and received \$1000 grant from Pasadena Water and Power to turn the water on in the park in this time of extreme drought to keep trees and plants alive there. If you've noticed the new young street trees that went on either side of Woodbury, pat yourself on the back or thank other AH members who wrote polite letters to the Supervisor encouraging the addition of more street trees to augment the center median planting recently installed by the County; in a few years, Woodbury Avenue will become a green and leafy entry to Altadena. And special thanks to Supervisor Antonovich and deputy Sussy Nemer for making this huge improvement a reality.

Membership in Altadena Heritage is a concrete way to involve yourself in our community. We cannot do the work without your support. Please renew or join online, or return the renewal form you will receive along with your holiday celebration/annual meeting invitation or on the back of this newsletter.. Please keep your membership current, consider giving Altadena Heritage membership as a gift to friends who have not yet found us, and think about volunteering in 2015!

Michele Zack, Chair

Golden Poppy Celebration

Altadena Heritage held its Golden Poppy Garden Celebration on May 14th hosted by Sally Fisher on the grounds of her lovely home (the former Hulda Wilson estate) on Poppyfields Drive. This is the tenth year that we have awarded our bronze plaques to gardens that “give to the street” and beautify Altadena, though our tradition of a spring Garden Party at someone’s fabulous private garden every year dates back 30 years to Altadena Heritage’s founding.

2014 winners are:

487 Alberta Street

1531 Pepper Drive

2425 Galbreth Road

468 East Marigold Street

668 East Mendocino Street

Some years we give special awards. In 2014 we honored Jose Cortes of Pueblo Tacos Number 3 at Hens Teeth Square for his imaginative and ever-morphing grottos and plantings that beautify a commercial property. Last year, a single row of cornstalks circled the parking area with an understory of edibles and flowers. While this work of art, in point of fact, lies just over the line in Pasadena, Jose’s creation faces Altadena and brings smiles to thousands of passers by. Thanks, too, to Hens Teeth Square owner Jeanette Henderson and son Ayo for supporting such innovative landscaping; you’ve done something special to enhance this lovely 1920s brick building. It’s worth a trip to check out the miniature grottos – also for a great carnitas taco, or a friendly cappuccino at the Sidewalk Café. **AH**



Jose Cortes holding certificate from the Supervisor flanked by his wife and Sidewalk Café proprietor Ayo with unidentified Pueblo Tacos #3 staff member at left.



Golden Poppy Winner at 668 East Mendocino Street .



Golden Poppy Winner at 487 Alberta Street

Big Science in Altadena

The artistic thing is interesting. So many star scientists are (or were) accomplished artists, painters, and musicians. JPL space scientist Richard Davies is a painter (see his short memoir page 5), Roger Sperry, 1981 Nobel laureate in physiology and medicine, was a gifted sculptor, artist and ceramicist. The Arps (see Big Bang Heretic on page 7) subsidized an artist couple who lived on the property. Gustav Albrecht, a chemist, was a musician and music critic. Richard Feynman developed admirable graphic skills; his friend, artist Jirayr Zorthian, gave him art lessons in return for lessons in quantum physics.

There were social ramifications to all these Caltech and JPL people moving to Altadena in the 40s, 50s and 60s. Jewish architect Gregory Ain built a block of radically modern houses in 1947 on Highview, and Jewish residents, mostly from Caltech and JPL, moved into the neighborhood for the first time in any significant number. In the 60s, Pasadena emptied out its African-American and minority neighborhoods with urban renewal and freeway building, and many displaced people of color moved up the hill to Altadena. Real estate interests drew a red line down Lake Ave, Pasadena School District instituted court-ordered busing, and many white residents fled. Caltech hydrologist and civil engineering professor Norman Brooks and his wife Frederika, the Feynmans and many others joined Altadena Neighbors, a local group dedicated to fair housing and counteracting white flight. They kept their kids in public schools.

Another observation: many members of the scientific and engineering community – at least those in Altadena – are outdoorsy sorts, wilderness hikers, campers and nature lovers – and a great number have been drawn to ear-popping Altadena on the urban edge, living in homes practically in the chaparral with its associated wildlife and hiking trails.

In putting together this Big Science issue of our Newsletter, we've relied heavily on the recollections of Richard Davies, our personal link to the pioneering heroes of the Space Race, of whom he is one. Richard has served on the Altadena Heritage board for years, and has inspired some of our most memorable events: the two-day Boho/Highbrow event at the Mausoleum a few years ago where we recalled the local music and art scene of the 50s, and more recently, Altadena's 125th birthday party. "We should have a dance!" he announced at a board meeting in stentorian tones when we were first discussing how to celebrate Altadena Heritage's 25th birthday.

"And we should invite everybody in Altadena to a party," and so inspired we began planning for that historic event in which we rolled together our organization's and the community's birthdays.

Richard is modest. He agreed to help us with this Newsletter issue, but stipulated that it wasn't to be about him. Fortunately, he did agree to pen a short bio, encouraged and assisted by board member Linda World, that sketches a picture of Altadena in the Cold War years. We thank Richard for his contribution, and for the time he gave to answer the queries of fellow Newsletter authors Mike Simons and Cesar Gomez. And we are grateful that our lives and our town have been – and continue to be – so enriched by the brilliant scientific and engineering community that thrives here. **AH**



Richard Davies at right with Soviet Space scientists

In Memoriam

Francis (Frank) Crunk, long time Altadena volunteer who was active in hiking, rebuilding trails, Friends of LaVina, various Altadena Town Council sub committees, Altadena Heritage, rebuilding the Mt. Lowe observation pergola and as a member of Christmas Tree Lane Association for twenty years, died last month. Mr. Crunk embodied the Altadena ethos of volunteerism, individualism, and the Theodore Rooseveltist strenuous life lived with nature. Frank was particularly helpful with Altadena Heritage's computer issues in its early years, and his wife MJ, who predeceased him, was a Board Member for many years.

Settling in After WWII

By Richard Davies with Linda World

My first peek at Altadena came shortly before the Great Depression. I was about 8 years old, and my mother decided that we would take one of Los Angeles' ubiquitous Big Red electric street cars up North Lake Avenue to the foot of Mount Echo. From there we caught a tram that took us to the top of Mount Echo, where we boarded the railway that wove dramatically along the mountain to Mount Lowe Tavern.

I returned to Altadena in the late 1930s. By then the tavern had burned and was abandoned, but a pal and I hiked up Allen Avenue to the foot of Rubio Canyon. From there, we scaled the old tram line to Mount Echo and walked the railway to Mount Lowe. It was hot, and Rubio Canyon had a reservoir in those days, so we took a nice swim after the hike. We did not know that our swim was illegal until we read about our shocking behavior in *Pasadena's Independent Star-News* the following day.

My eventual move to Altadena came after World War II with my British war bride. I had left Caltech in May 1942 to serve in the US Army Air Corps. I was trained as a navigator and reconnaissance officer, and my year of living dangerously was 1944–45 with the 8th Air Force Bomber Command. I was stationed in Britain and finished my second tour just as the war in Europe ended in June 1945.

Meanwhile, I met my wife Gwenda while she was a graduate art student at the Cardiff Art & Technical College in Wales. We were married in Tredegar, Wales, just days before the war ended in Japan in August.

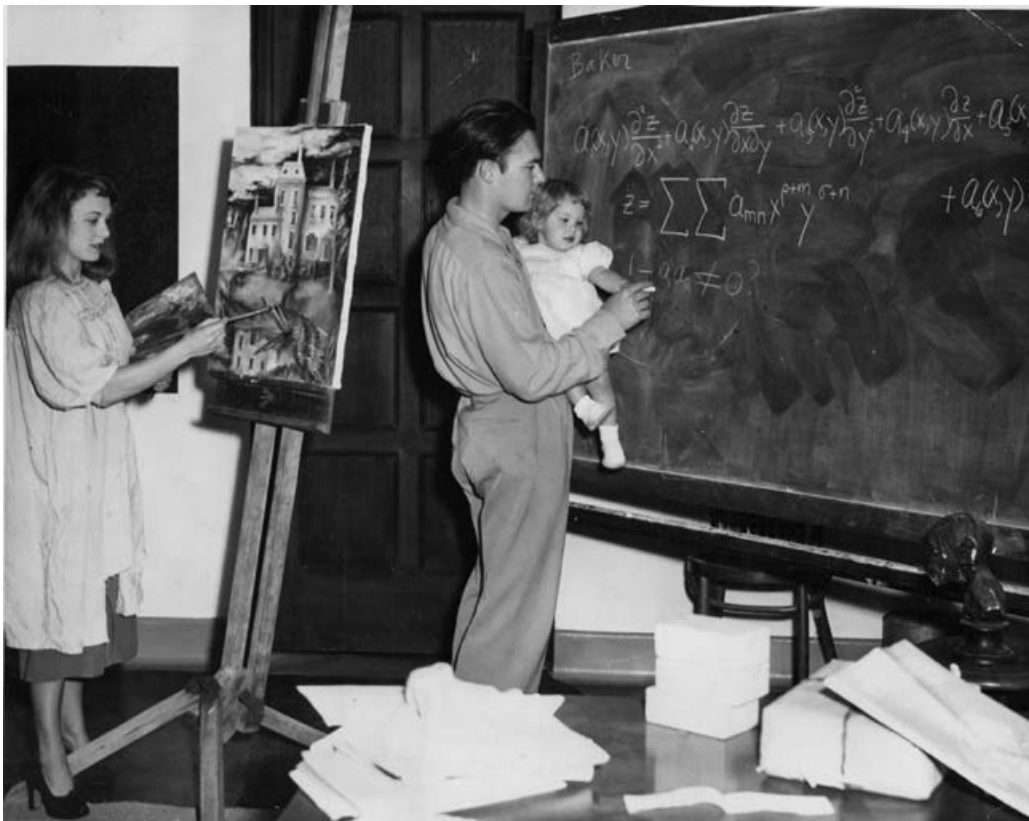
There was a large migration of people to southern California after the war—many of them young veterans with their brides and many attending college on the new G.I. Bill. American industrial production had been confined to armaments and associated defense efforts during the war, so there was a great shortage of housing afterward. The ensuing scramble for affordable housing ignited development in outlying suburban areas such as the San Gabriel Valley.

By 1950, I had finished my degree in math and physics at Caltech and accepted a job there in the Hydrodynamics Lab. My bride and I were looking for somewhere to settle in after years of rented rooms and student housing. One Sunday, we found ourselves almost accidentally at the foot of Mount Echo, where we met Pauline and Otto Heidelberger. They owned acreage that began at the foot of Mount Lowe, extending south along Loma Alta Drive and down the arroyo that became known as Sunny Oaks Circle. They had just subdivided the property into lots and offered to lend us money to build a house if we purchased a lot. I paid \$2500 for the lot, and moved into our first house in 1951. Architect Calvin

Straub also built a house there in 1951, along with several of his students from the USC School of Architecture. And so it was that we joined other young couples – many of them veterans, just beginning their careers and families. We lived there nine years, until we moved into a much grander house on Maiden Lane. Our son and daughter attended Noyes Elementary School on Pinecrest Drive, named after the Caltech professor of chemistry.

A Sunny Oaks neighbor, Bob Stewart, an electrical engineer, kept urging me to go to work at Caltech's Jet Propulsion Lab. I wasn't too sure about it at first, because JPL was operated under an Army contract at the time, and after WW II, I did not want to work on weapons. But when Altadenan William Pickering became JPL's director in 1954, I interviewed with him and was hired as a research scientist and project planner. It proved a good career move. When I joined JPL, it was building solid fuel rockets, but the launch of Sputnik in

October 1957 pushed JPL into space exploration, and what might have been work became excitement. Many of my JPL colleagues



Richard Davies with his daughter Helena and wife Gwenda at Caltech, 1947.

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Settling in After WWII

were of a like mind, and we formed some fine relationships among ourselves and with the international science and engineering communities. We experienced numerous failures in the beginning, but these disappointments did not dampen our desire to try again. I've seen so many people with souls damaged by the unending sameness of their work, but we were lucky. Our souls were lifted by the very nature of our endeavors.

Social life in Altadena was extensive and varied after the war. The Altadena Country Club was the center of much of the older established residents' social activity. Young veterans and their wives held neighborhood parties, where they noshed, danced, and argued politics. Many scientists and artists lived here as well, and the post-war expansion of Caltech/JPL added a new strata to the social life and cultural values of the San Gabriel Valley generally.

I was part of four or five different social circles that overlapped. I was a good friend of both the Nobel physicist Richard Feynman and the artist Jirayr Zorthian. The Feynmans lived in a house on Boulder Road, and the Zorthians built the "Z Ranch" at the top of Fair Oaks, where his son Alan still lives. Our families spent many Thanksgiving and Christmas holidays together — sometimes in Altadena but more often in Baja, where both Richard and Jirayr owned beach houses.

I introduced Jirayr to Gustav Albrecht, a friend who lived at the north end of Marengo in a house that's since been torn down. Gus was a chemist and sort of aide-de-camp to Linus Pauling, but also a music critic for the old *Pasadena Independent Star-News*. We would all attend operas staged each year by the San Francisco Opera at the Los Angeles Shrine Auditorium. Jirayr illustrated Gus's reviews for the old *Star-News*. In 2008, Altadena Heritage held a very successful two-day event at the Mausoleum, where a collection of these collaborations was displayed. Both Gus and Jirayr gave memorable parties.

Gus held two annual affairs that people came from far and wide to attend. They usually took place at his mountain cabin in Chilao Flats, about 30 miles north of here. One was a kite-flying party in the Spring; people brought their families, and all sorts of exotic, colorful kites would fly over Mt. Pacifico and Mt. Hillyer. At 5 the "martini flag" would go up — Gus was famous for his martinis. The party would move inside, where Gus would play the piano and the children — and sometimes the adults — would jump on the furniture and dance. It was a lot of fun. Gus also held a lively annual New Year's Eve party. The children stayed home for that one. Jirayr's many parties included the "primavera" bacchanals at the Z Ranch, which were well-documented in the Pasadena newspapers at the time.

Although many Caltech/JPL scientists and engineers attended, these and other parties were not particularly intellectual in a scientific sense. There might be some political talk, of course, but they were oriented toward relaxing and having fun. At that time, the scientific and engineering professions were almost all male, and it was the presence of women that made the parties a resounding social success.

The influx of African Americans during the 1960s was quite apparent in Altadena. Most of these newcomers bought or rented houses in the western part of the community where the dwellings were smaller and more modestly priced. For the most part, this



The Davies' Maiden Lane house in the early 1960s.



Richard Davies painting on his porch at his Marengo Avenue house today.

assimilation of African Americans into west Altadena took place without incident. Certainly the assassination of Martin Luther King in 1968 galvanized the liberal response to the deep-seated conservatism that characterized the whole valley when I moved here.

About that same time, I received a fellowship to spend a year in Paris as a consultant for the European Space Agency. When I returned, I rented a little house on Ventura in West Altadena that had an art studio. I had started painting when I became friends with John Altoon, a well-known Los Angeles artist. When I moved into the house in early 1970, the African American women at JPL would tease me about living "in the ghetto." But when I decided to buy another house, I stayed west of Lake Avenue, and I've lived here on Marengo for the past 30 some years. The front porch of my California craftsman makes a fine outdoor studio most days of a year. **AH**

Big Bang Heretic

By Kristana Arp

My father Halton Arp, Chip to friends and family, moved with his second wife, the artist Sue Dakin, to 3800 Canon Blvd., Altadena in 1967. They bought the property from the widow of F. B. Nightingale, a landscape lighting designer who was once a stage magician. He had left his mark on the place: the house had a secret room, and every Christmas Nightingale hoisted a large lighted star on the hillside for all of Altadena to see. Their first year there, Sue and Chip followed suit, but after a man almost killed himself climbing up to it, they discontinued the tradition.

The property included 40 acres of undeveloped land inside the boundaries of the Angeles National Forest, in addition to the three acres with houses built on them. One of the houses was occupied by old artist friends of my father's, Bill Ransom and his wife Karen Neubert. Living next to the wilderness had its hazards. Rattlesnakes crawled into the drainpipes under the house, which spookily amplified the sound of their rattles. My grandmother, who lived in another house built next to my father's orchid greenhouse, once discovered a rattlesnake in an empty pot. Tarantulas crawled over the floors at night and coyotes wandered by. Depending on the season, fire or mudslides were a constant concern.

My father's important work, *The Atlas of Peculiar Galaxies*, was published in 1966, just before the move to Altadena. But it was during the time he lived there that he developed his controversial theory about the origins of quasars.

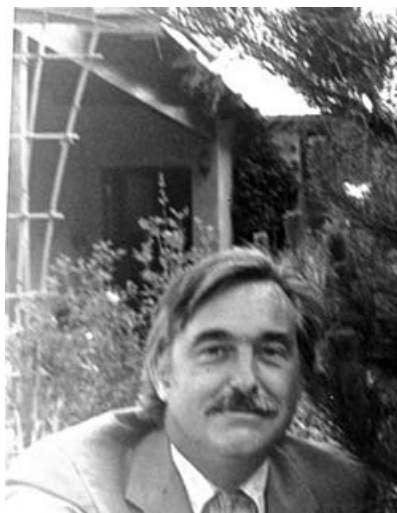
Quasars, or quasi-stellar radio sources, had been discovered in 1963. Astronomers were amazed by their high redshifts—the fact that the light emanating from them is shifted to the lower frequency red end of the spectrum. The conventional wisdom was that the high redshifts meant that these objects were receding from us into the far distance at high speeds, the same way the sound of the whistle gets lower and lower when a train rushes past.

My father began to notice that many quasars appeared in pairs located on either side of some of the peculiar galaxies he had researched. After collecting more evidence, he put forward the theory that the quasars had been ejected from the peculiar galaxies they surrounded. Since these galaxies lie fairly close to our own Milky Way galaxy, that meant that in this case, high redshifts were not an indication of distance. Instead, these quasars' redshifts were properties of the newly-formed matter that made them up, he speculated.

This theory caused much consternation in the astronomical community. Most astronomers, then and now, rejected it immediately. For one thing, if my father was right, it constituted a serious challenge to the Big Bang theory, the commonly accepted hypothesis that the universe began 15 billion years ago in an extraordinarily powerful explosion. Light from other galaxies

is all redshifted to some extent, and the farther away the galaxy, the higher the redshift. If redshift is a measure of distance, it means that the universe is expanding, which would be the case if the Big Bang had indeed happened. If some redshifted objects are actually much closer, as my father now argued, then this conclusion is drawn into question. My father's research did lead him to reject the Big Bang theory. Instead he believed that matter was being continuously created, a variant of the Steady State theory of the universe put forward by Sir Fred Hoyle in 1948.

During the years he lived in Altadena, my father persevered in the face of relentless criticism, and continued to do research supporting his theory. His faith in science led him to believe that the additional evidence he was collecting would convince his detractors. It did not. Beginning in 1982, after he had left 3800 Canon Blvd., he began to be denied observing time on the high-powered telescopes he had been using since his graduate student days. In his book *Quasars, Redshifts and Controversies*, Halton Arp wrote, "the sun would never shine as brightly or the morning smell as fresh after this day." Yet some people in the astronomical community continued to support him. Fred Hoyle became my father's friend. He and astronomers like Geoff and Margaret Burbidge and Guido Munch came to visit us in Altadena and took part in the wonderful dinner parties that Sue and Chip hosted. The Armenian



Halton Arp

astronomer Viktor Ambartsumian was once invited, along with Jerry Zorthian, the bacchanalian artist who owned a neighboring property. I remember the awkward moment when my sister and I at ages 15 and 17 were standing beside them in the living room and Zorthian addressed a comment in Armenian about us to Ambartsumian. Whatever Zorthian said made the stiff-necked astronomer blush red to the roots of his hair.

I first moved to live with Sue and my father in 1969 when I was in high school. It was a wonderful environment in which to grow up. My father was making amazing discoveries about the cosmos at the same time as I was discovering new dimensions to the world. In spite of his treatment at the hands of the scientific community he was always optimistic. The years he spent in Altadena were very intense, productive and exciting for him, and he would talk with great enthusiasm about his work with anyone who was interested.

My father died on December 28, 2013, in Munich, Germany, where he had moved in 1983 with his third wife. He had taken early retirement from Mount Wilson and Palomar Observatories, joined the staff of the Max Planck Institute there, and continued writing and trying to publish. **AH**

20th Century Physics in Altadena

By Mike Simons

In 20th century physics, dualities began to emerge. Light came to be considered both a particle and a wave. The boundary between energy and matter became “smeared.” Einstein revealed a freakish melding of space and time. And in Altadena, a pair of the leading giants of the field made their homes as they emerged into the public consciousness.

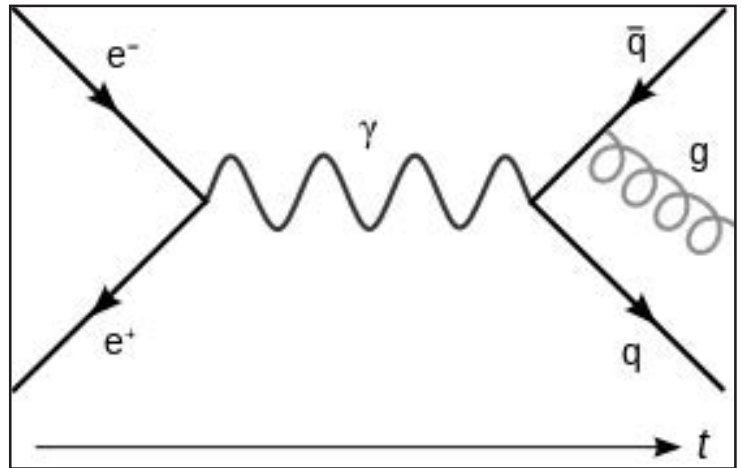
Richard Feynman and Murray Gell-Mann were profiled in the *New York Times Magazine* on October 8, 1967. The article, “Two men in search of the Quark” by Lee Edson, referred to the pair as “the hottest properties in theoretical physics today.” Feynman had been awarded the 1965 Nobel Prize in physics. Gell-Mann would win “The Swedish Prize” (as he referred to it) in 1969.

Both Feynman and Gell-Mann were renaissance men in their own fashions. Both had a deep interest in the arts and both had a connection to a local legend, the late Altadena artist Jirayr Zorthian.

Feynman and Zorthian had met at a party in the 1950's. Both men were going through divorces at the time and both men had their eye on the same girl that night. Among Feynman's many talents and loves was playing bongo drums, which he was doing feverishly that night to impress “The Girl.” Desperate to make his own play, Zorthian went into the bathroom, stripped to the waist, decorated himself with shaving crème, hung cherries from his ears and re-entered the party in a gyrating dance that not only won the girl that night, it won Feynman's admiration and led to a lifelong friendship. As Zorthian's son, Altadena Architect Alan Zorthian put it; “Whatever he (Feynman) felt like doing, he did it. And he and my dad had that in common.”

During World War II, Feynman worked on the Manhattan Project at Los Alamos that built the first atomic bomb. As Feynman told Christopher Sykes for his book, *No Ordinary Genius* “I became used to wartime action at high speed.” In the aftermath of the most deadly war ever fought, brought to a nightmarish end by the apocalyptic weapon Feynman had done much to help build, and following the death of Feynman's beloved first wife Arline from tuberculosis in 1945, he entered a difficult period.

An Altadena man who became a long time friend of Feynman's could relate to the psychological toll the war had exacted. Richard Davies did not build bombs during WW II – he dropped them – on Germany. Davies had entered Caltech as a junior college transfer in the fall of 1941. After completing the academic year he enlisted in the Army Air Corps in 1942. By May of 1944, Davies had begun what he calls “My year of living dangerously.” As a navigator in a B-24 bomber, he flew 30 combat missions and saw all the horrors that war could bring; a man decapitated by a crash landing plane, a crewmate who survived having two ribs torn out of his body by a piece of flak, pilots and crews breaking down psychologically and unable to continue flying. Davies himself survived two crash landings, “total wipeouts” on back to back days. Asked if it was hard to get back in an airplane on that third day he said, “It was. But I did it.”



Feynman invented the Feynman diagram in 1947, and it has since become a commonly used tool in theoretical physics, allowing for a simple visualization of what would otherwise be an arcane and abstract formula. In this diagram, an electron and a positron annihilate, producing a photon (represented by the sine wave in the middle) that becomes a quark-antiquark pair, after which the antiquark radiates a gluon (represented by the helix 'g'). (Source: Wikipedia)

After surviving 30 missions, Davies was free to go home. Amazingly, he volunteered for another full tour flying reconnaissance missions. When asked why on earth he had immediately put himself back in harm's way when he never would've had to face enemy fire again, Davies said, “I can't give you a good reason. I think I was addicted to the action.” Wartime action at high speed. There would be similar consequences for both Davies and Feynman.

“I was a little screwed up,” Davies said of his post-war self. “I was impatient. I wondered why I had to study.” There would be years of struggle ahead.

Feynman could relate. As he told Sykes, “I couldn't sit down and work stuff out... I just couldn't get anywhere. So I got the idea that I would never really accomplish anything after that.” Before he was 30, Feynman had resigned himself to obscurity.

“I thought to myself, I haven't done anything important and I'm never going to do anything important but I used to enjoy physics and mathematical things. It was never very important but I used to do things for the fun of it. So I decided I'm going to do things only for the fun of it.”

Isaac Newton was inspired by the sight of a falling apple, Feynman by the sight of a dinner plate thrown into the air by a student in the cafeteria. Not caring anymore about practical applications, Feynman worked out the mathematical relationship between the wobble and the spin of the plate. This soon led him back into a problem concerning the quality of “spin” in electrons and how they exchange energy with each other. This would be the work for which he would win the Nobel Prize.

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20th Century Physics in Altadena

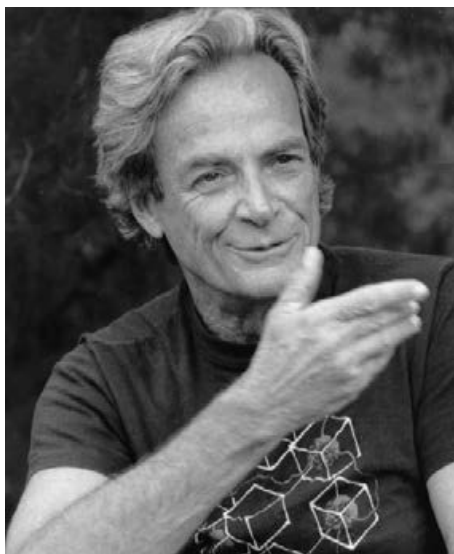
For Davies, the readjustment from wartime did not come so quickly. He returned to Caltech and completed a degree in mathematics, then continued on, doing extensive graduate work in physics before joining JPL in 1954. There had been at least one visit to a psychiatrist to relate his wartime experiences. But what really restored Davies was his work for JPL. "I was part of something bigger than myself," he said. "In 1958, things began to change for me."

Davies did not say so, but it may have been the old thrill of wartime action at high speed that fired his circuits once again. This time it wasn't a shooting war, but the Cold War, and the battleground of the Space Race. Especially after the launch of Sputnik in October, 1957, JPL was thrumming with energy. "The big thing," Davies said, "was not to let the Russians make us look like fools."

Jirayr Zorthian was Richard Feynman's best man when he married Gweneth Howarth in September of 1960. Individual friendships developed into family relationships as the Davies, Feynmans and Zorthians celebrated many Thanksgivings and Christmases together beginning in the 1960s and continuing into the 80s.

Alan Zorthian remembers Feynman as a "feisty" and hilarious Dutch uncle. "My sister Elsa and I would sit on his lap and he'd be a radio. If you tweaked his nose, you'd change the station. I'd be really into what was going on and then my sister would change the station."

Radio had been a huge force in Richard Feynman's boyhood and quite likely his development as a physicist. As author James Gleick writes in the first chapter of his biography of Feynman, *Genius*, "Later it was said that physicists could be divided into two groups, those who had played with chemistry sets and those who had played with radios." Feynman built his own crystal set as a boy. But as an adult he did not have a TV or a radio in his home or car. According to Alan Zorthian, "He didn't want anything clouding up his mind." But he loved sparking the imagination of children by mimicking the magic of electromagnetic radio waves. When recently contacted at his Massachusetts home, son Carl Feynman burst out in a hard laugh at being reminded of it. "Oh my god, I'd forgotten that." Asked what would come out of his dad's mouth during these 'broadcasts' he said "Anything!" before making the sound of a trumpet over the phone.



Richard Feynman

Fun. Dick Feynman was dedicated to it. He and Jirayr were both admirers of Leonardo da Vinci and decided to cast themselves in his mold. Jirayr taught art to Dick, Dick taught science to Zorthian. This went on for about 8 years. Dick became quite an accomplished artist. Jirayr learned very little science. But the two of them, along with Richard Davies had a lot of fun, and spent a lot of time at Gianone's Steak House on North Lake Ave in Pasadena (now home of Big Mamma's Rib Shack.) First, Gianone's had girls modeling clothes. Then the girls took off their tops. Then they took off their bottoms. Then they got busted. Feynman was the only patron who would testify in open court in defense of the owner. On Friday, November 7, 1969, Feynman testified he liked to visit 5 to 6 times a week. And according to Michelle Feynman, that was fine with her mother. "She just sort of thought of it as his club. If that's your thing, OK." In fact, he worked on a lot of physics problems there.

Someone it did annoy was Gell-Mann who would bemoan Feynman's preoccupation with "go-go dancers and bongo drums." According to George Johnson's biography of Gell-Mann, *Strange Beauty*, his comment to his friend, physicist Val Telegdi, regarding Feynman's testimony was, "That is Dick's view of civil rights."

Gell-Mann and Zorthian had their own friendship, though. Both were Yale grads and Murray attended any number of events at the Zorthian ranch at the top of Fair Oaks Ave. Alan says Murray's son Nicky has been up to the ranch this year. As for Murray himself, Alan describes him as "kind of a fussy guy. He wasn't like Feynman. He was more your stereotypical physicist."

That is, if your stereotypical physicist had co-discovered quarks and helped lay down the standard model for the grouping of subatomic particles and was fluent in any number of languages and could probably give you the Latin name for any tree or bird you pointed out and ... well, there was nothing "typical" about either one of the binary physicist stars of Altadena of the 1960s.

By the time Lee Edson's *New York Times Magazine* profile of Feynman and Gell-Mann appeared in October of 1967, the Gell-Manns had just sold their Altadena home and moved to Princeton for a year at the Institute for Advanced Study. When they returned in 1968, they moved into a home near the Rose Bowl.

Richard and Gweneth Feynman spent the rest of their lives in Altadena. Their children, Michelle and Carl, are graduates of John Muir High School. Michelle published a wonderful collection of her father's letters in 2005, *Perfectly Reasonable Deviations from the Beaten Track: The Letters of Richard P. Feynman*. In a June, 1975 letter to then (and now) Governor Jerry Brown, Feynman wrote, "I am often asked where I send (my children) to school so that they can best develop their active minds, I am proud to answer "the public schools of the state of California."

Richard Davies became a nationally ranked age-group marathon runner, running a 2:50 marathon at 54. Feynman began to train with him – they ran to the top of Mt. Wilson. But according to Davies, Feynman's heightened fitness revealed a lump in his abdomen. When it was removed, it was the size of a malignant football, and a decade long fight began. During that time, Feynman

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A short history of JPL

By Cesar Gomez

The Jet Propulsion Laboratory (JPL) and Altadena both grew at the fringe of Pasadena's penumbra of light. What eventually evolved into JPL began on the grounds of Caltech in 1935. At its core was a trio of motivated young rocketry enthusiasts, Frank Malina, John Parsons, and Ed Forman. Of these three, only Malina was actually a Caltech graduate student – Parsons and Forman were still teenagers. Their guiding spirit was Caltech aerodynamicist Theodore von Karman. In the mid 30s this group began field testing experimental miniature rockets, launching them directly from campus. These loud and dramatic experiments caused other Caltech students to dub them the "Suicide Squad." After one 1936 accident almost blew up a campus laboratory, the Squad was banished.

At von Karman's direction Malina, Parsons, and Forman decamped for an expanse of unincorporated Los Angeles County in the Arroyo Seco just west of Altadena. At a site near the north end of the empty Devil's Gate reservoir and unfettered by Pasadena municipal codes, the three rocketeers worked with gusto and determination. Despite the relative isolation of their new Arroyo Seco location, the huge booms of "contained explosions" and smelly fogs of sulfuric vapors were strenuously objected to by Altadena neighbors.

In the late 1930s, the War Department, anticipating the threat of war and grasping the military potential of rocket technology, contracted von Karman to fund the Squad's ongoing rocketry experiments. In 1936 von Karman's group spent a thousand dollars; by 1945 the organization's budget was several million dollars. The Suicide Squad became the Jet Propulsion Laboratory in 1943, and remained under Army control as a guided missile research and development laboratory for the next 14 years.

Space scientist, accomplished painter, and long-time Altadena resident Richard Davies recalls talking with post-war JPL director and fellow Altadenan William Pickering after coming to work there in 1954. Davies pointed out that JPL's expertise in guided missile technology could be translated into foundational work in deep space exploration. "I'm already there," Pickering replied.

In October 1957 the Soviet Union launched Sputnik 1, the first artificial satellite to orbit Earth. Suddenly, much to Cold War America's shock and humiliation, it became apparent that the Soviet Union held a substantial lead in rocketry, and there was immense pressure to get a US satellite into space. JPL provided critical research and accelerated development leading to the launching of America's first satellite, Explorer 1, in January 1958. This success led to JPL's formal association with the National Aeronautics and Space



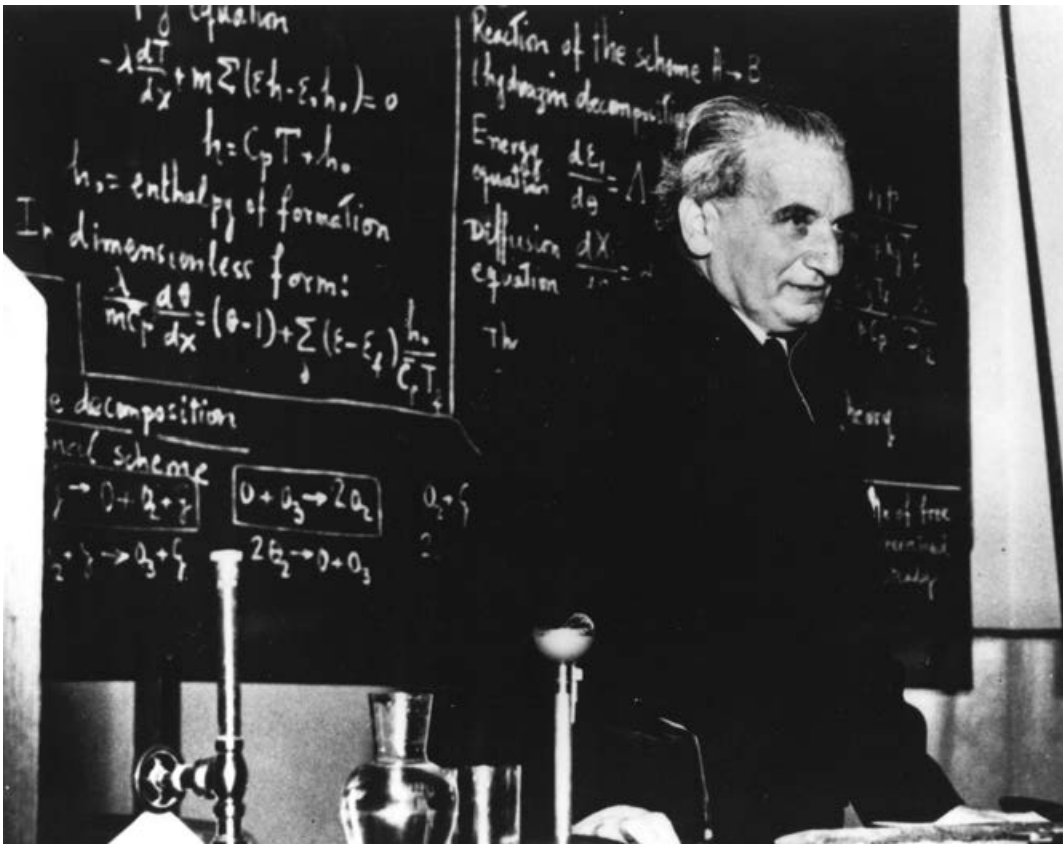
Technicians setting up an antenna to track Explorer in the Arroyo, 1958

Agency when the wholly civilian body was created by Congress in mid 1958, merging disparate facilities for space and aeronautical research under a single agency. Weapons development was left to the armed services. JPL's first (unwritten but well-understood) mission was: "Win the Space Race."

Today JPL is managed for NASA by Caltech and employs approximately 5,000 employees and a varying number of consultants. The JPL-NASA contract has been renewed every five years, resulting in a stable workforce that is highly educated, uniquely talented, and a boon to surrounding communities, including Altadena. Retired Altadena JPL engineer Rich Benson offered that many JPL employees stay on because the JPL's mandate to advance scientific discovery is "great and worthwhile." "Working with the science people is energizing." Mr. Benson added "because the scientists bring big ideas and they are able to get other (non-scientific) people to care about them."

However, there is one unfortunate development associated with JPL's proximity to Altadena. Between 1936 and 1980 chemicals – including perchlorates used in solid rocket fuel and volatile organic compounds (VOCs) – were disposed of in seepage pits that contaminated groundwater. Government analysis in 1988 determined that wells supplying Pasadena, and Altadena's Lincoln

A short history of JPL



Theodore von Karman, guiding spirit of the Suicide Squad.

Avenue Water Company, contained high toxic chemical levels, and the area was declared a Superfund site. Affected wells were capped, a treatment system was built, and monitoring wells drilled. NASA has stated that in the short term these corrective actions “have reduced potential risks to human health and the environment.” Monitoring and treatment continue.

Altadena initially escaped Pasadena’s expansionist ambitions because in 1880 the city’s founders never imagined that the scruffy acres of gravel and chaparral north of the Indiana Colony would ever be more than a “valueless tract.” In 1880 Altadena was “about as beautiful to look upon as the average seven days beard upon a man’s physiognomy” sneered early Pasadena city historian, J.W. Wood. Pasadena’s founders could not imagine that water from Rubio, Millard, and Eaton canyons would transform Altadena

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20th Century Physics in Altadena

would contribute to, among other things, the commission that figured out why the Space Shuttle Challenger exploded.

Feynman died in February of 1988 at the age of 69, Gweneth died in 1989. They are buried in Mountain View Cemetery in Altadena. At a TED talk in 2011, Carl and Richard Feynman’s friend Danny Hillis recalled hiking with Richard in the hills above JPL not long before he died. Feynman asked Hillis why he seemed down.

into what it later became. So, too, the 1930s-era Pasadena power establishment lacked the imagination to believe von Karman’s “Suicide Squad” was destined to attract massive government funding, leading to today’s world-renowned JPL. Pasadena delayed annexing the 177 acres of unincorporated Arroyo Seco land occupied by JPL (though earlier they did grab much of what was once Altadena, plus the upper Arroyo to secure water rights). Pasadena lost the legal right to annex the land when La Cañada incorporated in 1976.

Altadena and JPL have always had a strong connection. Altadena was and remains home to legions of JPL scientists, engineers, administrators, consultants, and interns, and it has been enriched by the artistic, humanistic, and aspirational dreams of these same multi-talented individuals who have made this unique community “between wilderness and

city” their home. And why do they make their home here?

Physical proximity is a major factor but other reasons may lie in the nature of the community. “Altadena welcomes maverick people” Rich Benson points out, “the kind of people who are scientists but also artists” who feel at home living among “an eclectic mix of people.” Richard Davies – who inspired Altadena Heritage to organize Altadena’s 125th birthday party in Farnsworth Park in 2012 – observed this eclecticism at the event where Altadenans of different generations and economic and demographic backgrounds joyfully celebrated Altadena’s founding in the Davies Building. “Altadena is an easy place to live,” says Davies. “It isn’t too pretentious. It’s integrated. And,” he added, “I love to see the mountains when I drive up the street.” **AH**

Hillis replied, “I’m sad because I realize you’re about to die.” “Yeah, that bugs me sometimes too,” Feynman replied, “but it’s actually not as bad as you think. By the time you get to be my age and you’ve told as many stories as I have, a lot of what’s good about you has kind of rubbed off onto other people. And they listen to you and repeat what you say. You’ll see that although I will be dead, I won’t be completely gone.” Brilliant. **AH**



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November 2014



ADVOCACY AND
 PRESERVATION

November 2014

PDF version of this newsletter available on our website: altadenaheritage.com

Save the Date! Holiday Celebration at the Z-Ranch, December 14, 2014

In a departure, Altadena Heritage's year-end bash will be a rusticated affair at the world-famous Zorthian Ranch, from noon to four Sunday, Dec 14, thanks to board member Alan Zorthian.

Join us at this art-filled hilltop property for this year's general meeting and holiday celebration. Food and drink, music, high spirits and board election, as usual — in one of Altadena's most unusual and marvelous spaces.

Look for your invitation, member renewal form, election materials, and parking instructions in the mail. This is a members-only event. As always memberships are available at the door for lapsed and new members — who will be in good standing through the end of 2015. No high heels, and children must be on leash.



BECOME A MEMBER

Choose one:

New member Renewing member

Type of membership:

\$25: Individual \$35: Household \$15: Full-time student
 \$15: Senior individual (65 and over) \$100: Patron

Are you interested in volunteering?

Yes! Contact me. Not at this time.

Name _____

Address _____

City, State, Zip _____

Telephone _____

Email _____

Make check payable to **Altadena Heritage** and mail to:

Altadena Heritage
 730 E. Altadena Dr.
 Altadena, CA 91001