



Robert Millikan, Japanese internment, and eugenics

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Abstract Robert A. Millikan (1868–1953) was the second American to win the Nobel Prize in physics. At the peak of his influence, no scientist save Einstein was more admired by the American public. Millikan, the head of the California Institute of Technology (Caltech) during its first 24 years, oversaw its rapid growth into one of the leading scientific institutions of the world. However, in response to demands for social justice following the murder of George Floyd, Caltech launched an investigation into Millikan. Caltech reached a decision to strip Millikan of honors (such as the library named after him), following accusations from various sources that he was a sexist, racist, xenophobic, antisemitic, pro-eugenic Nazi sympathizer. In short, Caltech threw the book at him. This article analyzes two accusations against Millikan. The first of these accusations was published in *Nature*: that he collaborated to deprive Japanese Americans of their rights during their forced relocation to internment camps during the Second World War. An examination of original historical sources will show that this accusation is false. On the contrary, Millikan actively campaigned during the war to promote the rights of Japanese Americans. This article traces the stages of misrepresentation that led to current false beliefs about Millikan. In view of Millikan's extraordinary position in American science, this misrepresentation is a cautionary tale. The article also treats Caltech's central accusation against Millikan: he lent his name to "a morally reprehensible eugenics movement" that had been scientifically discredited in his time. The article considers the statements purporting to show that eugenics movement had been denounced by the scientific community by 1938. In a reversal of Caltech's claims, all three of Caltech's scientific witnesses against eugenics—including two Nobel laureates—were actually pro-eugenic to varying degrees. This article concludes that Millikan's beliefs fell within acceptable scientific norms of his day.

1 Robert Millikan

1.1 Scientific contributions

Millikan's life spanned one of the most fertile periods in the history of physics, covering the birth of quantum theory, special and general relativity, subatomic physics, and nuclear energy. He was born in a small town in Illinois in 1868 not long after James Maxwell published his famous equations on electromagnetism and died in 1953 shortly before the birth of Yang-Mills theory. Millikan was one of the greatest experimental physicists in the world during the first half of the twentieth century. He built his reputation on high-precision instruments that he designed for experimental use. During his lifetime, the United States moved from the margins of physics to a powerful central position.

In 1951, in a letter to Werner Heisenberg, Millikan made a self-assessment of what he thought to be his most important scientific contributions [61, 43:729]. First on his list was the isolation of the electron and the measurement of its charge. Millikan was awarded a Nobel Prize in 1923 for the famous oil-drop experiment, which measured the electron charge. These measurements also led to reliable estimates of Avogadro's number [56].

Second was his experimental verification of Albert Einstein's photoelectric equation, which was also recognized by the Nobel Prize. Einstein's and Millikan's Nobel Prizes are closely linked: Einstein's for the theoretical derivation of the photoelectric equation and Millikan's for the experimental verification. (Contrary to what some might expect, Einstein's Nobel Prize was not for the theory of relativity.) As a bonus, Millikan obtained what was then the best experimental value of Planck's constant.

The photoelectric effect gave one of the first hints of wave-particle duality. Einstein hypothesized the existence of what is now called a photon—a hypothesis that flew in the face of the settled science of wave optics. This

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unsettling concept of light motivated Millikan in his experiments, and he eventually confirmed Einstein's equation. At the celebration of Einstein's seventieth birthday in 1949, Millikan recalled [61, 68:642] [64, p. 106]:

I spent ten years of my life testing that 1905 equation of Einstein's, and, contrary to all my expectations I was compelled in 1915 to assert its unambiguous experimental verification in spite of its unreasonableness since it seemed to violate everything that we knew about the interference of light. The contradictions involved in this equation could not be removed by any considerations which were available at the time to Planck, to Einstein or to any of the rest of us. These contradictions have now largely disappeared, however, through the development of the so-called "wave mechanics" by the work of Louis de Broglie, Schrödinger, Heisenberg, and Dirac.¹

Even today, wave-particle duality continues to pose some puzzling philosophical questions [57]. Millikan's research on the photoelectric effect and the electron helped to propel physics from the atomic scale to subatomic particles.

Third was the closing of the gap between light spectra and X-ray spectra, using the "hot spark source of light." Robert Kargon described the research findings as follows:

In a series of papers with R.A. Sawyer and Ira Bowen, Millikan was able to make a considerable extension of the map of the ultraviolet spectrum; they had been able to photograph, measure the wavelength, and analyze the atoms of light elements and multiply ionized atoms of the heavier atoms. They found about 1,000 new [atomic spectral] lines, and showed that their wavelengths were consistent with the Bohr theory—Kargon [45, p. 125].

Millikan and his collaborators compared their new lines against the predictions of an enhancement of the Bohr model: the relativistic Bohr-Sommerfeld model of the atom [63, pp. 209–231]. They found some problems with the theory that were later reconciled by the introduction of electron spin to the model [96].²

The fourth on the list is "the law governing the pulling of electrons out of metals by intense electrical fields." See [45, p. 126] and [63, p. 261]. The experimental results of C. F. Eyring, Millikan, and Charles Lauritsen were eventually explained by J. Robert Oppenheimer quantum-mechanically as electrons tunneling through a potential barrier.

Fifth was the extraterrestrial origin of cosmic rays. The term *cosmic rays* was coined by Millikan, but he was not the first to provide evidence of their extraterrestrial origin. In 1912, several years before Millikan became involved in cosmic ray research, Victor Hess, in Nobel Prize winning work, made measurements in balloons and "concluded that the upper atmosphere is ionized by radiation from space" [72]. Millikan and G. Harvey Cameron submerged electroscopes into mountain lakes and found that their readings at different water depths confirmed the extraterrestrial origin of cosmic rays [21]. In the early days of cosmic ray research there was much to investigate: how cosmic ray intensity varies according to altitude, latitude, and longitude; how deeply they penetrate; whether the rays carry positive, negative, or no charge; and how the energy is distributed. Millikan was among the most active researchers in this field.

Millikan was sometimes wrong. If cosmic rays carry charge, then they are deflected by the earth's magnetic field, producing a more abundant shower of cosmic rays near the earth's poles than the equator. Millikan and Cameron made a scientific expedition to Peru in 1926 to answer this question experimentally, but because of their lack of thoroughness, limitations of their electroscopes, and partial equipment failure, they failed to detect any significant dependence of cosmic ray intensity on latitude. Millikan fatefully took non-detection as evidence that cosmic rays carry no charge. In opposition to Millikan's conclusion, the next year, Jacob Clay presented experimental evidence that cosmic rays do indeed vary in intensity according to latitude, and hence that cosmic rays do carry charge. Arthur Compton backed up Clay's results. Millikan eventually accepted the Clay-Compton conclusion, but only slowly and only after acrimonious exchanges with Compton, which were dragged into the public arena by *New York Times* reporting [45].

Sixth is the design of a specialized cloud-chamber for the detection of cosmic particles. Carl Anderson was a PhD student under Millikan at Caltech. After completing his PhD, Anderson continued at Caltech as a Research Fellow (1930–1933) but shifted to cosmic ray research, still supervised by Millikan, who ran three different cosmic ray research groups, each using a different kind of detector. Anderson later recalled, "Professor R. A. Millikan and the writer in the spring of 1930 planned a cloud-chamber apparatus suitable for cosmic-ray studies, . . . [2]"³

¹ According to science historian Allan Franklin, Millikan's interpretation of his own experiment evolved over time. At the time, "neither Millikan, nor the physics community accepted" Millikan's experiments as a confirmation of the photon theory [26]. The quotation expresses Millikan's late view.

² The Uhlenbeck-Goudsmit article of December 1925, which introduced the concept of electron spin, stated, "The assumption of the spinning electron leads to a new insight into the remarkable analogy between the multiplet structure of the optical spectra and the structure of X-ray spectra, which was emphasized especially by Landé and Millikan. . . . [This analogy] obtains an immediate explanation on the hypothesis of the spin electron" [96].

³ Millikan wrote that he and Anderson designed the cloud chamber in the summer of 1929, but Anderson's date seems more plausible, because of the period of Anderson's fellowship [63, p. 322].

Anderson built the cloud chamber over a period of months. In August 1932, when Anderson was only twenty-six years old, his cloud chamber detected a positron, the first form of anti-matter ever detected. For the discovery of the positron, Anderson was awarded a Nobel Prize in physics. It was Millikan who nominated him. Four years later, Anderson and his first graduate student, Seth Neddermeyer, discovered yet another elementary particle, the muon, which carries the same electric charge as the electron, but possesses greater mass.

1.2 Secondary influences

Millikan attracted and was attracted to truly extraordinary scientific talent. He went to Germany for three semesters after finishing his PhD at Columbia in 1895 and was present in Berlin for Wilhelm Röntgen's first large public exhibition of the X-ray. In 1896, Millikan attended Max Planck's lectures. According to Millikan, it was during those lectures that Planck conceived the idea of the quantum or discontinuous change (but did not publish on the topic until a few years later). Elsewhere in Europe were Henri Becquerel's discovery of radioactivity in 1896 and J. J. Thomson's research on the electron in 1897. It was a new era in physics. Millikan wrote in his autobiography that these "discoveries actually determined the direction of my own study and research for the next fifty years" [64, p. 270].

The first American Nobel Prize winner in physics was Albert A. Michelson, who is remembered for the famous Michelson-Morley experiment, which failed to detect motion of the earth relative to the luminiferous ether, a fact later explained by Einstein's special theory of relativity.⁴ It was Michelson who recruited Millikan to the University of Chicago. For decades in Chicago, until Millikan left for Caltech, the two were close colleagues and friends, playing tennis together regularly [64, p. 87]. Michelson regarded Millikan as his successor at the University of Chicago, but history had other plans.

The second American to win a Nobel Prize in physics was Millikan. The third was Arthur Compton, Millikan's nemesis in the cosmic ray debate. (Arthur's brother Karl will be relevant later in this article.) The fourth was Millikan's student Carl Anderson, mentioned earlier. The fifth was Clinton Davisson, who as a student at the University of Chicago was inspired by Millikan to go into physics. Davisson faced financial hardship as a student, and it was through Millikan's recommendation that Davisson obtained employment as a physics teacher, while he continued to work his way through school [27, 47]. Davisson won his Nobel Prize for observing diffraction patterns of electrons, confirming Louis de Broglie's prediction that wave-particle duality is not limited to photons.

Millikan's influence extended beyond pure science into industrial research that shaped the modern world. The physicist Frank Jewett was the first president of the legendary AT&T Bell Telephone Labs starting in 1925 and later became the chairman of its board of directors. Jewett and Millikan were the closest of friends. Millikan helped line up Jewett with his wife, who had been a Millikan student; and Jewett was the best man at Millikan's wedding [64, p. 53].

In 1909, chief engineers and executives at AT&T started discussing the feasibility of establishing transcontinental phone service. The core technological problem was that as the telephone signal travels down the copper wire it grows weaker, so that a signal originating in New York would be entirely lost before reaching San Francisco. What was needed was an efficient *amplifier* (or *repeater* to use the term originating in the telegraph industry) that boosted the signal and kept it from attenuating in its transcontinental journey [28, p. 21].

Already in 1909, Jewett was a senior manager at AT&T. The task of amplification became Jewett's responsibility. He consulted his friend Millikan about the problem in 1910. Jewett asked Millikan to let him "have one or two, or even three of the best young men who are taking their doctorates with you and are intimately familiar with your field. Let us take them into our laboratory in New York and assign to them the sole task of developing a telephone repeater" [28, p. 22]. Millikan sent Jewett his recent PhD student, Harold Arnold (who would later become Bell Lab's first director of research) to work on the task.

What happened next is mythical. An amplifier, called an *audion*, had already been recently invented by Lee de Forest. (In 1946, Millikan called de Forest's audion the single most important advance in electronics of all time [61, 43:63].) Arnold and his team went to work improving the performance of the audion for AT&T, after the organization bought the patent rights to de Forest's invention. From time to time, Millikan consulted on the project, but he was mostly a bystander. The research and development resulted in a practical vacuum tube amplifier, which was used in the transcontinental telephone line. At the Panama-Pacific International Exposition in 1915, Alexander Graham Bell and Thomas Watson, positioned in New York and San Francisco, gave the first transcontinental public demonstration: "Mr. Watson, come here, I want you," echoing their immortal words from decades earlier [28, pp. 23–24]. The vacuum tube amplifier revolutionized electronics throughout radio, film, television, computer, and consumer electronics.

⁴ Michelson's Nobel Prize was awarded for "for his optical precision instruments and ... investigations carried out with their aid."

The friendship between Millikan and Jewett led to a procession of physicists that were trained by Millikan and employed by Bell Labs. Mervin Kelly was another physicist who obtained his PhD under Millikan [28, p. 16].⁵ Kelly became director of research at Bell Labs starting in 1936 and later became president of Bell Labs. As research director, Kelly redirected research focus from vacuum tube technology to solid-state physics and recruited William Shockley to lead the solid-state research group. Kelly once stopped by Shockley's office (which was shared with Davisson) and lectured on the coming day when something electronic would replace telephone relays. "For the rest of his life Shockley considered Kelly's lecture as the moment when a particular idea freed his ambition, and in many respects all modern technology from its moorings" [28, p. 23]. The research group—Shockley, John Bardeen, and Walter Brattain—was awarded the Nobel Prize in physics for the invention of the transistor.

Relationships were not merely scientific. Chien-Shiung Wu is known for the discovery of parity violation, for which she was awarded the Wolf Prize in physics in 1978. When Chien-Shiung Wu married Luke Chia-Liu Yuan in 1942, none of the parents were able to attend, because of the war. The Millikans hosted the wedding, which was held at their home. Millikan was Yuan's doctoral advisor. Yuan's grandfather was Yuan Shikai, a president of the Republic of China.

1.3 Education

In education, Millikan and Gale's *First Course in Physics* is perhaps the best selling English-language physics textbook of all time. Including all editions and title variations, Millikan and Gale sold 1,610,637 copies between 1906 and 1952 [61, 43:520]. It is particularly remarkable that these numbers were achieved in the first half of the twentieth century, when the physics textbook market was much smaller than it is now. In the international textbook market, a Caltech webpage states that "*The Feynman Lectures on Physics* is perhaps the most popular physics book ever written. More than 1.5 million English-language copies have been sold; probably even more copies have been sold in a dozen foreign-language editions (the number of copies in Russian alone, for example, is estimated to be over 1 million)" [33]. By way of comparison, popular physics books have sold far more copies. Stephen Hawking's *A Brief History of Time* has sold more than 25 million copies [58].

1.4 Caltech's executive

Kargon wrote that the physicist Millikan, astrophysicist George Hale, and chemist Arthur Noyes formed a "triumvirate" that "was responsible for the rapid rise to prominence of . . . the California Institute of Technology" [45]. The idea of a founding triumvirate of Caltech has been repeated almost to the point of cliché, but the three scientists contributed in entirely different ways to the rise of the institute.

George Hale was the dreamer. He called himself a schemer. In 1903, Hale secured funding from the Carnegie Institute to construct a solar observatory on Mount Wilson near Pasadena. Each of his dreams led to another. Hale envisioned a chemical laboratory to handle problems that arose at Mount Wilson, then more ambitiously of an outstanding technical institute to house the chemistry lab. In 1907, Hale became a trustee of Throop Polytechnic Institute in Pasadena, which was an unremarkable local manual training school. Hale channeled his hope of creating an outstanding institute into Throop. He spent years recruiting Noyes to head the division of chemistry, and Millikan to serve as president. Jewett called Hale the "gifted strategist" and Millikan "the field general" [45, p. 92]. What Hale schemed, Millikan brought to life.

Millikan was appointed the chief executive of Caltech in 1921, the year after Throop was renamed the California Institute of Technology; he held the position for twenty-four years. He was offered the title of president but instead chose an organizational structure that made him the chairman of an executive council, consisting of four trustees and four distinguished members of the faculty. Noyes was one of them. Millikan was also the director of Caltech's physics division—the Norman Bridge Laboratory of Physics. "Millikan was everywhere planning, pushing, deciding, admonishing. . . . His day at the Institute, starting at eight o'clock in the morning, frequently did not terminate until long after midnight" [21].

Noyes had been acting president of MIT for two years before moving to Caltech and had considerable administrative know-how. Linus Pauling wrote that "Millikan became a great public figure, who in the minds of the people of the country represented the California Institute of Technology; but Noyes was often the one who was responsible for the policies that were announced by Millikan" [75].

When Millikan first arrived at Caltech, DuMond recalled, "The faculty and graduate students were still a small enough group so that at the first faculty dinner we could all sit around a single long table in the basement of the Crown Hotel" [21]. Under Millikan, Caltech swiftly grew. During its first decade, Caltech made several stellar faculty appointments.

⁵ How many PhD students did Millikan supervise? A very rough estimate suggests he supervised more than eighty PhDs in physics, including more than thirty from the University of Chicago. At Caltech alone, by 1940, Millikan supervised about one-third of the more than 135 PhDs [30, p. 107].

- Theodor von Karman, who became the director of Caltech's Aeronautical Laboratory and later a founder of the Jet Propulsion Laboratory;
- Carl Anderson, the Nobel Prize winning discoverer of the positron, discussed earlier;
- Fritz Zwicky, an astronomer of neutron stars, dark matter, and gravitational lenses;
- Robert Oppenheimer, who was head of the Los Alamos Lab during the Manhattan Project to develop nuclear weapons;
- Richard Tolman, who served as scientific advisor to General Leslie Groves, the director of the Manhattan Project;
- Thomas Hunt Morgan, who won the Nobel Prize in 1933 for establishing that chromosomes carry the genetic material;
- Alfred Sturtevant, who made the first genetic map of a chromosome;
- Theodosius Dobzhansky, who was one of the architects of the modern synthesis, combining Darwinian evolution, population genetics, and Medelian genetics; and
- Linus Pauling, one of the founders of quantum chemistry and the recipient of two Nobel Prizes (in Chemistry and Peace).

Other renowned scientists were closely affiliated with Caltech. Charles Richter, who developed the Richter scale, was part of the Caltech Seismological Lab, which at the time was a cooperative venture between the Carnegie Institute and Caltech. Edwin Hubble, who gave evidence for the expansion of the universe, was nearby at the Mount Wilson Observatory.

The growth of Caltech can be measured in many ways. In scientific productivity, "by 1930, Caltech was ranked as the leading producer of important physics papers in the country" [30, p. 108]. Its endowment, which was almost nonexistent in 1920, had grown to \$25 million by 1947. Caltech had completed construction of only two permanent buildings in 1920 and thirty-six by 1947 [64, p. 249].

Caltech initiated a broad array of scientific projects, each of which was an undertaking of industrial scale, requiring major funding (from sources such as the Rockefeller Foundation, the Guggenheim Fund, the Carnegie Institution, or industrial partners); scientists, engineers, and students; buildings, labs, and equipment. In cooperation with the Southern California Electric Company, a high-voltage lab was built. The Guggenheim aeronautics lab tested Douglas airplanes in its wind tunnel. "Caltech's Daniel Guggenheim Graduate School of Aeronautics played a major role in turning southern California into the aircraft capital of the world [30, p. 177]." There were Millikan's cosmic ray project, a seismology project, the study and development of jet propulsion, and the study of oil under high pressure sponsored by the American Petroleum Institute. Starting in the 1920s, Hale had a vision of building the largest telescope in the world. Caltech's Palomar Observatory, including its 200-inch Hale Telescope, became operational in 1948 [64, pp. 238–250].

2 Japanese internment and the Fair Play Committee

World-altering political events shaped Millikan's final years at the head of Caltech. After the attack on Pearl Harbor, the United States declared war on Japan. Japanese Americans living on the West Coast were forced to relocate to internment camps. An organization named the *Fair Play Committee* was formed in Berkeley to defend the rights of Japanese Americans. Millikan became a vice president in this organization. After the war ended, scientific missions were organized to Japan to evaluate Japan's scientific capabilities. Millikan assisted in the recruitment of scientists and engineers for these missions.

2.1 Pearl Harbor

Japan attacked Pearl Harbor on December 7, 1941. The next day, the United States declared war on Japan. In January 1942, anti-Japanese sentiments intensified, and widespread hostile feelings were directed against Japanese Americans.⁶ Anti-Japanese rhetoric was especially fierce in California, which was the home to the majority of all continental Japanese Americans. In California, the Hearst newspapers, the McClatchy newspapers, the *Los Angeles Times*, as well as hundreds of civic organizations were united against Japanese Americans [78, p. 37] [50]. On January 29, 1942, a Hearst newspaper columnist wrote of the Japanese on the West Coast, "Herd 'em up, pack 'em off and give 'em the inside room in the badlands. Let 'em be pinched, hurt, hungry and dead up against

⁶ This article uses the term *Japanese American* inclusively both for United States immigrants of Japanese citizenship (Issei), and for American-born citizens (Nisei) of Japanese ancestry. What this article and many sources today call internment camps were formerly called relocation projects. Formerly, internment camps meant enemy alien camps administered by the Department of Justice.

it... Personally, I hate the Japanese. And that goes for all of them” [59]. A barber shop offered “free shaves for Japs” but was “not responsible for accidents” [94, p. 18].

The newspapers and public opinion were backed up by political power. In February 1942, Earl Warren was the California attorney general and was soon to be elected governor of California (January 1943–1953). Years later, he would become the chief justice of the United States. Warren favored the evacuation of Japanese aliens from California.

Walter Lippmann, one of the most respected journalists of his time, visited Warren and General John DeWitt in California. Lippmann published an enormously influential column that appeared in the *Washington Post* and 250 other newspapers on February 12, 1942.⁷ The article amplified the general’s and attorney general’s fears of sabotage. The title “The Fifth Column” referred to those who engage in sabotage within their own country. Lippmann stoked fears of a Japanese sea and air attack on California, coordinated with sabotage by “enemy agents on land.” His readers knew which racial group he was referring to. He called for Washington to act decisively to establish the West Coast as a combat zone, letting “the explanations and the reparations come later” [54] [78, pp. 49–50]. Lippmann’s column went to Secretary of War Henry Stimson and to the second in command, John J. McCloy. According to McCloy’s biographer Kai Bird, “More than any other individual, McCloy was responsible for the decision [of Roosevelt], since the president had delegated the matter to him through Stimson” [11].

On February 19, 1942, a little more than two months after the attack on Pearl Harbor, President Roosevelt signed Executive Order 9066, which authorized the establishment of military zones; all Japanese Americans living within these zones were soon to be forcibly expelled and relocated to internment camps. The military zone included all of California, coastal portions of Oregon and Washington, and southern parts of Arizona.

Starting in 1942, all Japanese Americans (about 112,000) were forcibly relocated from the West Coast into ten internment camps that were built in scattered locations throughout western states and Arkansas. For example, the Topaz internment camp in central Utah housed over 8000 Japanese Americans in military-style barracks, each small family in a one-room apartment lit by a single lightbulb and heated by a potbelly stove. Life was austere, yet the camp offered a range of basic services: a hospital, library, schools, Buddhist and Christian churches, general stores, co-ops, banks, repair shops, and police and fire departments run by the internees. The camp was one square mile, surrounded by barbed wire and guard stations.

A civilian government agency, the War Relocation Authority (WRA), ran the internment camps. Dillon S. Myer was the WRA director for almost the entire duration of agency’s existence, 1942–1946. Although the director over internment, Myer became opposed to internment.⁸ The historian Alonzo Hamby, in a book review of Greg Robinson’s book on internment [79], wrote that Myer and a few others “struggled futilely for an early end to the program against a flood tide of hysteria and expediency” [37].

Over time, legal challenges against internment made their way to the Supreme Court. Finally, on December 17, 1944, the “Roosevelt administration issued Public Proclamation No. 21 ... declaring that Japanese Americans could return to the West Coast the next month.” This proclamation marked the end of Japanese internment. The proclamation pre-empted by one day the Supreme Court, which issued two decisions (*Korematsu v. United States* and *Ex Parte Endo*). The justices ruled that the WRA had no authority to detain loyal citizens.

2.2 Japanese-American petitions to Millikan

When Japan attacked Pearl Harbor on December 7, 1941, Robert Millikan and his wife Greta were traveling in Mexico City. As Greta tells it, “A Mexican gentleman, recognizing us as Americans, I suppose, told [our guide] E. that he had just heard on the radio of Japan’s attack on Manila and Hawaii. It seems impossible that it has really come—we were sobered and stunned, ...” [61, 80:89].

As soon as Greta was back in Pasadena in January 1942, she hurried over to the home of her Japanese gardener Harris Ozawa and his family, recording in her diary, “Although warned to stay at home, they had gone quietly about their jobs, having nothing to conceal or be ashamed of” [61, 80:108]. Later, when about to be forced out of Pasadena, in a sentimental scene, Ozawa replanted the azaleas from his own home into the Millikan garden as a parting gift, but Greta insisted that the flowers were only on loan until his return. Greta saw the Ozawas off at the train station, as they left for the Tulare detention camp: “With duffle bags and big suit cases, bedding rolls and baskets, families assembled at the starting point where a sympathetic social service worker helped them with details; a group of church women served hot coffee and rolls.” Concerned about the living conditions at the temporary detention camps, Greta visited the Santa Anita camp. She made contacts with organizations to aid Japanese-Americans. Harris’s wife Elizabeth wrote frequent letters to Greta that chronicled life under internment.

⁷ After meeting in person with him, Millikan praised Lippmann’s 1943 book on U.S. foreign policy for its clarity of thought [61, 45:889]. However, in 1942 on Japanese-American policy their views were in sharp opposition.

⁸ Assessments of Myer vary enormously. Greg Robinson’s book on internment states that Japanese Americans celebrated Myer’s camp administration during the war, but that Japanese-American attitudes turned sharply against him in the 1980s [79, p. 256]. Others held that Myer inherited “what may well have been the toughest, most exasperating civilian job during the war” [43, 99].

After the war, the Ozawa family was prevented from retaking their house in Pasadena, and Greta assisted with the “time-consuming and not a little exasperating” legal process to regain possession [61, 80:109,132,135,284,381].

The war brought Robert Millikan into renewed contact with Japanese acquaintances. A friend, T. Hori, sent a plea to Millikan [61, 43:1016].

Yes, the United States is now at war. It is my sincere hope that this country will win and forever banish the demons of war from this world. . . .

Last Monday, a week ago today, all our assets were frozen because of my visit to Japan for the sole purpose of visiting my invalid brother who lived in this country for over thirty years, and also because I am an alien. During this past week, a majority of the leading Japanese aliens were taken away to the Terminal islands for investigation, . . .

On the other hand, my wife, who is an American citizen, received many telephone calls from her American church friends asking about her welfare. . . . This kindness and thoughtfulness impresses us deeply. . . .

Yes my entire household is wholeheartedly supporting the cause of freedom and democracy for which the United States stands. . . . – Hori, Dec 15, 1941

Arriving back in Pasadena from Mexico, Millikan responded to Mr. Hori [61, 43:1016]:

Your letter touched me deeply. I shall be glad to talk over the situation with you anytime, and if I can be of any assistance in making the difficult situation in which you and other loyal members of your group find yourselves I shall want to do it. Mrs. Millikan, too, has been wondering whether she could be of help to members of your group. – Millikan, Jan 6, 1942

A former Caltech student Koichi Kido sent a plea to Millikan on January 28 [61, 28:452]:

You, Dr. Millikan, are a champion of democracy. You, sir, are a champion of human freedom. Will you fight to help maintain them in these United States? . . .

There is the probability that many of us will be moved inland very shortly. . . . There is the final possibility that all of us will not only be moved inland but be interned for the duration. . . .

We who are citizens of the United States just as you are and who have no political ties with Japan (dual citizenship for instance) have the same rights and privileges as you do. Everyone who has any knowledge of the Constitution and the Bill of Rights is aware of this fact. . . .

Who will defend us? – Koichi Kido, Jan 28, 1942

Moved by Koichi Kido’s letter, Millikan wrote to the Pasadena Chamber of Commerce and City Board of Directors [61, 28:454].

Pearl Harbor awakened this country from its idle dream of isolated security. It is very important that we do not go to the other extreme and take hysterical, instead of considered, action in the matter of defense. . . .

It is particularly important that we do not go to any unwise wholesale schemes in trying to protect ourselves against the dangers arising from our residents of enemy country origin. . . .

To adopt any wholesale policy of putting them all in concentration camps would be an action which would defeat its own purpose, not only in weakening the defense industries in which they are so useful, but also in arousing justified resentment because of the unfair treatment of loyal American citizens and thus increasing, rather than decreasing the danger of sabotage. – Millikan, Feb 4, 1942

Millikan responded to Mr. Kido [61, 28:454].

[I] appreciate fully the difficult situation in which you, the American citizens of Japanese parentage, are placed by the action of the Japanese government. I have been doing all I can to get discrimination and sanity into the treatment of the many who are likely to suffer unjustly in this difficult situation. If there is anything in particular I can do to help you I hope you will let me know. – Millikan Feb 6, 1942

By mid-February, through two of its press releases, Millikan had become aware of the Fair Play Committee in the California Bay Area, which opposed discrimination against Japanese civilians. (The organization was to go through several renamings, but this article consistently calls it the Fair Play Committee.) The organization’s first press release in October 1941 (before Pearl Harbor) called upon “fair-minded Californians to combat discrimination against their fellow residents of Japanese race” [49]. The first paragraph of the press release stated [49].

. . . popular resentment toward Japan may find expression in greater discrimination or even physical violence against fellow-residents of Japanese extraction, distrust of the Japanese Government being transferred to all persons of Japanese race. A moment’s thought will show that such animus would be not only un-American, but also a menace to public welfare and the good name of the state. – David Barrows, Fair Play, Oct 1, 1941.

On February 15, 1942, Millikan wrote to the Fair Play organization with an interest “in securing cooperation in Los Angeles County.” Millikan’s overture was welcomed. On March 3, 1942, Millikan was appointed a vice president of the committee. Millikan was now a senior officer in an organization fighting for the fair treatment of Japanese Americans.

2.3 Fair Play

The Fair Play Committee was formed in the fall of 1941 by David Barrows and Galen Fisher to defend the rights of Japanese Americans. Barrows was a political scientist and former president of the University of California. According to the historian Robert Shaffer [84],

Galen Merriam Fisher (1873–1955) was probably the most significant and consistent white organizer of opposition during World War II to the wholesale incarceration . . . of Japanese Americans. As a former missionary in Japan . . . Fisher was the key founder in 1941 of the [Fair Play Committee]. . . . Throughout the war Fisher wrote numerous articles criticizing the mistreatment of Japanese Americans. – Robert Shaffer, Densho Encyclopedia

From the beginning, the committee had strong university ties, especially with Berkeley. Robert Sproul, the president of the University of California, became the honorary chairman. Provost Monroe Deutsch and several Berkeley professors were also active participants.

The Fair Play advisory board consisted of a group of highly influential political, business, educational, and religious leaders, including Stanford’s Chancellor Ray Lyman Wilbur; its Dean of the Graduate School of Business, Jackson; former California Governor, C. C. Young; the President of the California State Chamber of Commerce, A. Lundburg; former President of the State Bar Association, G. Hagar; the Mayor of Berkeley, F. Gaines; and many others.

The Committee’s executive secretary, Ruth Kingman, had access to the corridors of government power, meeting with key government figures such as California State Attorney General Bob Kenny, U.S. Attorney General Biddle, WRA Director Myer, Assistant Secretary of War McCloy, FDR’s daughter Anna Roosevelt Boettiger, and some members of Congress.⁹ Judicious and steadfast, she always seemed to know what to suggest next to nudge policy makers one step further into alignment with the goals of Fair Play. The committee was loyal to the United States and the war effort and worked as a “moderating influence on both public opinion and government authorities, and helped avert mob violence against Japanese residents” [49]. The committee was not a relief organization. It worked to change policy and public opinion through speakers, educational materials, and corrections to the press. A membership drive leaflet affirmed its purpose:

The fundamental purpose of the Committee is to support the principles enunciated in the Constitution of the United States, and to that end to maintain, unimpaired, the liberties guaranteed in the Bill of Rights. The Committee believes:

1. That attacks upon the rights of any minority tend to undermine the rights of the majority.
2. That attempts to deprive any law-abiding citizen of his citizenship because of racial descent are contrary to fundamental American principles and jeopardize the citizenship of others. . . .
3. That it is un-American to penalize persons of Japanese descent in the United States solely for the crimes of the Government and military cast of Japan.

– Fair Play [16]

The page footer of Fair Play stationary quoted FDR: “Americanism is not, and never was, a matter of race or ancestry” [25].

Fair Play advocated a policy of *dispersed relocation* for Japanese civilians after the war, a policy in agreement with the War Relocation Authority [86]. The policy had three noteworthy components. (1) The policy opposed segregation into Japanese ghettos. (2) For practical reasons, “it is convinced that there will never be a mass return of evacuees to the West Coast.” (3) Finally, “the right of loyal Japanese to come back [to the West Coast], if they so elect, cannot be denied without a denial of all that America has hitherto meant to racial and religious minorities, of all that it has symbolized for the hopes of humanity” [86]. During the war, while working to change policy and public attitudes, Fair Play held that Japanese-American rights must ultimately prevail. However, recognizing the strong public opposition, the committee did not insist on their immediate return. Millikan publicly supported Fair Play’s policy of dispersed relocation.

⁹ Robert Cozzens, the Assistant National Director of the WRA, said that “Ruth Kingman was to see us at least once a week and generally a couple of times a week.” Kingman worked a lot with state Attorney General Bob Kenny, who was “said to have influenced Warren finally to accept the inevitable” [18].

In fact, dispersed relocation is how history played out. According to the *Washington Post*, “When at last the Army rescinded its exclusion order about 57,500 evacuees moved back to their former homes in the West Coast states. But about 51,800 settled eastward in new homes” (March 28, 1946) [7]. Even before rescission, under Myer’s lenient policies, a significant fraction of Japanese had left the internment camps and resettled outside California [6, 101].

2.4 Investigation into Pasadena’s Fair Play

The Pasadena chapter of Fair Play came under political attack in December 1943. Leading the attack was California State Assemblyman Chester Gannon, who ran the California State Assembly Committee on the Japanese Problem, which opposed the return of Japanese-Americans to California. Anti-Japanese sentiments were flaring up, because of reports of Japanese riots at the Tule segregation camp the previous month.¹⁰ Accusing the Pasadena chapter of waging a pro-Japanese campaign, Gannon organized hearings at the State Building in Los Angeles and subpoenaed the entire executive committee of the Pasadena chapter. The committee grandstanded to intimidate Fair Play and to portray the Pasadena chapter in a bad light. In reaction to Gannon committee excesses, the *Los Angeles Times* published an editorial against the committee’s tendency to “browbeat and abuse witnesses.” “When they turn themselves into witch-burning agencies . . . they go far afield” [5]. A December 1943 article “Inquisition in Los Angeles” in *Time Magazine* described the hearings as a “legislative romp into U.S.-Jap baiting” [4].

When it was realized that Millikan had not received a subpoena, an attorney for Gannon’s committee called Millikan on the telephone for a statement, which was read into the record of the hearings. For the record, “Dr. Millikan stated that he was familiar with the statement to this committee by Mrs. Maynard F. Thayer [Pasadena Fair Play chapter chair] and was in hearty accord with it” [17].

2.5 Kuroki and Sproul speeches

In an oral interview about the Fair Play Committee, Ruth Kingman recalled that there were two events in 1944 that “marked the first real change in the attitude of the state” of California: the Kuroki speech at the San Francisco Commonwealth Club¹¹ and the Sproul speech in southern California [50].

Ben Kuroki was an American citizen of Japanese descent in the United States Army Air Force who flew a total of fifty-eight combat missions over Europe, North Africa, and Japan during World War II. Monroe Deutsch, who was on the Fair Play executive committee and the president of the San Francisco Commonwealth Club, arranged for Kuroki to speak. He spoke frankly about his combat experience and the discrimination he faced.

[L]oyal Americans of Japanese descent are entitled to the democratic rights which Jefferson propounded, Washington fought for and Lincoln died for.

In my own case, I have almost won the battle against intolerance; I have many close friends in the Army now – my best friends, as I am theirs – where two years ago I had none. But I have by no means completely won that battle. Especially now, after the widespread publicity given the recent atrocity stories,¹² I find prejudice once again directed against me, and neither my uniform nor the medals which are visible proof of what I have been through, have been able to stop it. – Ben Kuroki, Feb 4, 1944 [52]

Kuroki received a standing ovation. Many in the audience were weeping. The publicity was resoundingly positive, even from the Hearst and McClatchy newspapers [50].

The second event was the University of California President Sproul’s speech in Los Angeles. Katherine Kaplan, the Fair Play executive for southern California, decided to organize a Los Angeles chapter. Her husband Joseph Kaplan, a physicist at UCLA and friends with Sproul, persuaded Sproul to speak at a luncheon in Los Angeles to launch the local chapter. At Sproul’s suggestion, Katherine Kaplan asked Millikan to be the “chief sponsor of the event and to act as Master of Ceremonies.” Millikan agreed [44] [50]. Sproul called for increased tolerance:

The barometer of tolerance toward the evacuees is still too low on this Coast, and the opposition is still vehement and unscrupulous. We need your help . . . to create an acceptance by the California public of the

¹⁰ Accounts of the Tule camp events of November 1943 vary widely. Myer believed that “no violence was planned” [3]. Barbara Takei, the author of a book on the Tule camp, has written that the Japanese “riots” were actually a “peaceful show of support” and dismissed the newspaper reports of rioting as “sensationalized tales” [93]. The events of November led to the imposition of martial law at the Tule camp, which lasted into January 1944.

¹¹ Today, “the Commonwealth Club of California is the nation’s oldest and largest public affairs forum . . . Martin Luther King, Ronald Reagan, Bill Clinton and Bill Gates have all given landmark speeches at the Club” [8]. In decades past, it was viewed as an influential group of business and professional men in San Francisco and northern California.

¹² The “atrocity stories” are events at the Tule Lake camp before and during a period of martial law that lasted until January 15, 1944.

enlightened way of dealing with law-abiding persons even though they are members of an unpopular minority.
–Sproul, June 29, 1944 [86]

Sproul’s speech “was considered probably the best single statement made all during the war on the status of Japanese Americans” [50]. Katherine Kaplan called it “magnificent!” The speech, which was made into a pamphlet and became an authoritative statement of Fair Play policy, received “the same degree of favorable publicity as Sergeant Kuroki got up North” [50]. Thousands of copies of the pamphlet were distributed [103].

Ruth Kingman spoke about the changes in public opinion after the Kuroki and Sproul speeches [50].

From then on, we got opposition, but very little hate opposition. We got a great deal of support for constitutional rights; the rights of men in uniform; or the rights of people who were doing a job for the country which the public would never have accepted before as being the prerogative of anybody of Japanese ancestry. Opponents didn’t talk very often anymore. Some did, but by and large there was no further extensive or rabid talk about “They’ll never come back!” It was, sort of, “Well, when they come back.” – Ruth Kingman

2.6 Millikan’s participation

Millikan’s participation in the Fair Play Committee should not be exaggerated. There was a limit to what he could contribute. Caltech, which was going through major transformations during the war, needed Millikan’s decisive leadership. Caltech became “practically a factory for the production of war weapons,” building more than a million rockets [61, 43:564] [64, p. 248]. At the same time, many were on leave for war work. It was a challenging time to lead Caltech.

Despite being a busy man, Millikan contributed what he could to Fair Play. He was the master of ceremonies at Sproul’s speech, an event that helped turn the tide of public opinion; his name inspired the Pasadena chapter, the most active chapter outside the Bay Area; he helped organize the Los Angeles chapter and became a member of the chapter’s executive committee, while still serving on the committee’s central advisory board [44, p. 51].

On September 29, 1944, not long before Roosevelt issued the proclamation ending internment, the Pasadena chapter of Fair Play sponsored a talk by WRA Director Myer at the local public library auditorium. The political factions on internment policy were complicated and take some time to unravel. As mentioned earlier, Myer had become opposed to internment and pushed to dismantle the program. However, politicians and public opinion hindered his efforts. Fair Play supported Myer’s belief in the Bill of Rights for all citizens. Antagonistic Hearst newspapers accused the WRA of coddling the Japanese. Many wanted Director Myer dismissed and replaced with a hard-liner.

Millikan, introducing Myer to an overflowing audience, quoted parts of Sproul’s speech, emphasized the need to preserve the Bill of Rights, and denied Hearst newspaper accusations. Myer spoke of softening public attitudes. As reported by the *Los Angeles Times*, “A changing attitude on the part of the public will make the return of all Japanese to all sections of the country an easier job from here on” [6]. Myer won the audience over.

On December 18, 1944, the day after the proclamation from FDR that ended internment, the chairman of the community council at the Wyoming Heart Mountain relocation center (one of the ten Japanese internment camps) sent Millikan a thank-you note. The Japanese community council, which met twice a week, formed the leadership of the Heart Mountain center.

Dear Dr. Millikan:

May we take this opportunity to thank you for your untiring efforts in bringing the principles of this nation into proper perspective to the people in regards to the evacuation of Japanese from the West Coast. We are in receipt of the good news today of the lifting of the restriction on Japanese by the Western Defense Command. We realize that you played no small part in realizing this very important move.

–Minejiro Hayashida, Dec 18, 1944 [61, 43:931]

The letter shows that Millikan’s influence was felt directly in the internment camp. Many Japanese-Americans thanked Fair Play in letters. In 1946, after its purpose was completed, Fair Play was dissolved.

2.7 Postwar scientific missions to Japan

Millikan’s wartime involvement with Japanese policy came primarily through the Fair Play Committee. In addition to his Fair Play activism, Millikan also had a small indirect scientific connection with postwar Japan. At the end of the war, Millikan communicated with the physicist Alan Waterman about scientific missions to Japan, organized through the Office of Scientific Research and Development (OSRD). This section describes the origin of these scientific missions and Millikan’s assistance in recruiting Japanese-American scientists and engineers.

During the war, Vannevar Bush, who reported directly to FDR, was the head of the OSRD, a wartime agency created to conduct scientific research for the military. This U.S. federal government agency coordinated almost all

wartime military research and development. Even the Manhattan Project to develop atomic bombs was initially under the OSRD.

Within the OSRD, Bush created the Office of Field Service (OFS), and appointed Karl Compton chief and Alan Waterman deputy. The OFS provided “civilian technical expertise needed by military commands in the field, particularly those in the Pacific.” Its employees were largely scientists and engineers – especially physicists, electrical engineers, and communications experts [83, p. 17].

The OSRD and its field office were directed by renowned names in science. Bush, who had been a dean and vice president at MIT and an early researcher in analog computers, became a visionary of information technology. The physicist Karl Compton, the brother of the Nobel laureate Arthur Compton, was president of MIT for eighteen years. After the war, Waterman, a physicist, became the first director of the National Science Foundation. He is remembered today through the prestigious Alan T. Waterman Award for scientists.

The OSRD was reorganized when the war in Europe ended. Compton was transferred to Manila to establish a Pacific branch of the OSRD, and Waterman replaced Compton as OFS chief. There were plans to expand the Manila office to more than two hundred scientists and engineers. However, the day after Compton arrived in Manila, on August 6, 1945, the atomic bomb was dropped on Hiroshima. Japan surrendered days later, on August 14 (Victory over Japan Day or V-J Day). The plans to expand the Manila office were abruptly cancelled.

Instead, efforts were immediately redirected toward postwar scientific expeditions to Japan. According to Compton, “Every branch of Army, Navy, Air Force began immediately after V-J Day to get technical investigating teams” to evaluate Japan’s scientific capabilities. Some of the teams were to number as many as 750. Compton and Edward Moreland (who was Bush’s successor as dean of engineering at MIT) themselves led one of the earliest expeditions, which resulted in a massive 850-page scientific report [83, p. 17] [42].

It was at this moment of intense activity of the OSRD in the Pacific when Waterman sent Millikan an urgent request. Waterman asked Millikan for information about “former Japanese students enrolled in scientific and engineering studies” at Caltech [61, 31:1003]. The Office of Scientific Research had an apparent urgent need for Japanese-speaking scientists and engineers. Caltech’s registrar and alumni office promptly produced 44 names, which Millikan forwarded to Waterman. The Waterman-Millikan correspondence will matter in what follows, because of the way it was later misinterpreted.

3 Dishonor

3.1 Committee on Naming and Recognition (CNR)

A movement to have Millikan and others stripped of honors at Caltech (such as the library named after Millikan) started during the summer of the 2020 Black Lives Matter protests amid the widespread toppling of statues. The Black Scientists and Engineers at Caltech (BSEC) sent a petition to the Caltech community on June 25, 2020 [80, p. 36]:

By now we are all well-aware of the global protests calling for police reform following the graphic murders of Ahmaud Arbery, Breonna Taylor, George Floyd, and countless others at the hands of the officers whose supposed duty is to protect and serve. –BSEC

The BSEC called on Caltech to “reform the long-standing causes of racial bias which have disproportionately hurt racially minoritized members of the Caltech community” and called on the Board of Trustees to “rename the buildings which currently honor Nazis, racists, and eugenicists: Millikan, Watson, Ruddock, Chandler.”

A separate petition with many signatures was submitted by Michael Chwe (a Caltech alum who now is a political scientist at UCLA) in July 2020. Here are the opening sentences of Chwe’s petition [80, p. 39]:

As members and friends of the Caltech community, we believe that Caltech cannot honor individuals who actively supported and encouraged crimes against humanity. Therefore we call for Caltech to rename all buildings, spaces, and programs named after Robert A. Millikan, . . . – Chwe petition

Caltech President Thomas Rosenbaum formed a Committee on Naming and Recognition (CNR) to examine the issues in the petitions. The committee issued a final report on December 17, 2020, recommending “that Caltech remove the names Millikan, Chandler, Gosney, Munro, Robinson, and Ruddock from all Institute assets and honors.” The Caltech Board of Trustees endorsed the recommendation. President Rosenbaum wrote that “renaming buildings is a symbolic act, but one that has real consequences in creating a diverse and inclusive environment.”

A follow-up article was published in *Nature* on November 10, 2021 [92]. One student is quoted, “I find it important to rename the buildings just because I don’t want to have that constant reminder that the people who built this institution didn’t want me to exist.” Another student said of the Millikan Library, “We shouldn’t be

idolizing people with horrible views of the world.” It is striking to find such emotionalism coming from Caltech students and published in *Nature*.

It is beyond the scope of the research here to examine all of the claims of the CNR report and the *Nature* article. The scope of this section is restricted to statements about Millikan’s wartime attitudes toward Japanese Americans.

3.2 Bloodlines

Anthony Platt is a retired professor of American history, public policy, and social sciences. He is the author of the book *Bloodlines*, published in 2006, which is the source of false and inflammatory accusations about Millikan [76].¹³ This section analyzes some of the claims in *Bloodlines*, especially those related to Japanese internment. Although false, some of these accusations became part of the official report of Caltech’s *Committee on Naming and Recognition* and were among the reasons given to strip Millikan of honors [80].

The book *Bloodlines* is structured around the history of the original typescript of the Nuremberg Laws, signed by Hitler and enacted by Nazi Germany in 1935 [76]. The laws established the black-white-red swastika as the national flag, declared that only those of German or related blood were eligible for citizenship, and prohibited marriage between German and Jew.

The original Nuremberg document fell into the hands of General George S. Patton Jr. in Germany at the conclusion of World War II, as a spoil of war. When he returned to America, Patton was welcomed by a homecoming parade along the streets of Los Angeles on June 9, 1945. Two days later in Pasadena, Patton presented to Millikan the Nuremberg Laws, which were placed in the vault of the Huntington Library for safekeeping. At the time, Millikan was the chairman of the board of trustees at the Huntington Library. A historic photograph shows Patton and Millikan standing together under a portrait of George Washington, the document in hand. From there, Patton traveled to Washington, D.C. to meet with President Truman [76, p. 102].

A central accusation of Platt’s book is that several of those who handled the original Nuremberg Laws – including Patton, Millikan, and some trustees at Huntington Library – formed an enclave of Nazi sympathizers. Platt provocatively claimed that Millikan’s “ideological assumptions were the same as those that guided the Nuremberg Laws. . . .”¹⁴ Platt imagined Patton and Millikan “in 1934 shaking their heads in agreement as they read an item in the U.S.-published *Eugenical News*, reprinted from the Nazi press, about how ‘large German cities’ were being ‘literally swamped by . . . Jewish physicians.’”

Platt’s accusation that Millikan was ideologically aligned with Nazi Germany is false and takes little effort to refute. His tale linking Patton and Millikan to the Nazi press is purely fictional and is inconsistent with Millikan’s character. One convincing way to see that *Bloodlines* misrepresents Millikan is to read Millikan’s own words. Millikan’s autobiography contains several statements about Hitler [64]. To allow Millikan’s views on Nazism to appear without editorial selection, every single statement is enumerated. On page 90, Millikan asks, “Is not the greatest menace . . . defined as what Mussolini, Hitler and Lenin have done to Italy, Germany and Russia?” On page 116, Millikan speaks of the “degradation of Germany under Hitler.” On page 254, Hitler is called a gangster. On page 256, Millikan writes, “Had we been in the League of Nations in 1936, prepared to do our part, . . . he [Hitler] could have been permanently checked.” On page 258, Millikan wrote that “for the sake of overthrowing Hitler we became Russia’s ally, . . .” Finally, on page 277, Hitler is called a maniac. Not a single one of these statements supports the claim that Millikan was a Nazi sympathizer.

Starting in the mid-1930s (and to a lesser extent in the 1920s), Millikan warned America of the twin dangers of pacifism and isolationism. “Long before Pearl Harbor he [Millikan] saw what was coming and led the movement against isolationism in California” (*Los Angeles Times*, 1950) [9]. Although the *Los Angeles Times* report might be hyperbolic, as the decade progressed, he became increasingly publicly vocal through many speeches, publications, and radio addresses on the evils of fascism and totalitarianism. Millikan did not hold back. As an admired Nobel laureate, he had enormous influence, which he directed towards this pressing cause. The documentary evidence is abundant.

Millikan’s evangelism against fascism had international reach. In his address “India and the War” on June 12, 1940, Millikan made an appeal to India, following his eight-month cosmic-ray expedition to India. He spoke with the eloquence of a senior statesman [61, 67:730]:

In no war in history have the fundamental issues of the struggle been made more clear either with respect to India, the United States, or any peace loving people, for they have been stated unmistakably in *Mein Kampf*. Or, if words are not considered sufficient evidence, and one thinks there is any chance that the expressed

¹³ Cecilia E. O’Leary is listed as a coauthor of *Bloodlines*, but the acknowledgments state that “for health reasons, Cecilia was not able to participate in the writing of this book.” The narrative voice is first-person singular, recounting events of Platt’s life.

¹⁴ Platt does concede, however, that “Millikan resigned from the American Committee for Democracy and Intellectual Freedom because it was not sufficiently vigilant against Nazi and Communist agents. . . .” [76, p. 124].

purposes will not be put into practice, the continuous stream of acts of perfidy, barbarism, and dishonor which have accompanied the inhuman treatment of the Jews and the successive rape of the liberties of the adjoining little countries of Austria, Czechoslovakia, Poland, Denmark, Norway, Holland, Luxembourg, and Belgium make crystal clear what modern civilization the world over can expect from the triumph of the Nazis. Between the ideology of conquest and that of rational, peaceful change there is no possible compromise. . . . This is the time for every American and every Indian and every peace loving man everywhere to exert every ounce of influence he can to prevent the destruction of civilization and the return of the horrible tyrannies and despotisms that have cursed mankind through all history. – Millikan, June 12, 1940

3.3 Bloodlines on internment policy

This subsection analyzes statements from the book *Bloodlines* about Millikan’s activism for Japanese-American rights. Millikan’s activism in the Fair Play Committee for the protection of Japanese rights does not square with *Bloodlines*’s claim that Millikan was ideologically a Nazi. According to *Bloodlines*, “On the ‘Japanese Problem’ during World War II, Millikan took a more complicated, but ultimately opportunistic position” [76, p. 126]. Millikan’s position was not complicated: his support of the Fair Play Committee was unwavering throughout the war. Millikan was not opportunistic in the sense of seeking self-gain; nor did his actions lack ethical principle. Most criticisms by Platt of Millikan on the Japanese issue are non-specific and suggest that Platt held the entire Fair Play Committee in low regard.

Two sentences from *Bloodlines* are particularly relevant. Platt wrote [76, p. 126]:

In 1943, Millikan told counsel for an Assembly committee investigating the dangers of treason that he favored dispersal throughout the country of California’s Japanese at the end of the war. – Platt

The sentence refers to Millikan’s telephone conversation during Assemblyman Gannon’s committee hearings, as discussed earlier. The sentence is a peculiar way to describe the Gannon hearings because of all that it leaves out – that the Gannon committee and Fair Play were political adversaries, that Fair Play was the target of the investigation, that Millikan was called up because of his support of Fair Play, that the committee had the tendency to browbeat witnesses, and that *Time Magazine* called the hearings an inquisition.

The mention of “dispersal” in Platt’s sentence is a reference to Fair Play’s policy of dispersed relocation, which is discussed in detail above. The policy declared a Japanese right of return to California as soon as the exclusion order was rescinded, while recognizing practical reasons for voluntary partial dispersal outside California. Millikan endorsed this policy.

The sentence from *Bloodlines* makes Fair Play’s position sound sinister by failing to mention its insistence on Japanese-American rights and by setting the encounter at a “committee investigating the dangers of treason.” The insertion of the dangers of treason into the context is a red herring: Fair Play’s policy was entirely unrelated to dangers of treason. Indeed, Fair Play waged a public relations campaign against false but widespread accusations of Japanese-American disloyalty. From its very first press release, Fair Play stated that it would be un-American to transfer a “distrust of the Japanese Government” “to all persons of Japanese race.” The CNR copied verbatim Platt’s sentence on the Gannon investigation into its report, without citing *Bloodlines* as its source.

Here is the second relevant sentence from *Bloodlines* [76, p. 126]:

After the war ended, Millikan did not hesitate to turn over to military intelligence the names and known address of all students of Japanese background who had studied at Caltech between 1929 and 1944. – Platt

The sentence has an ominous feel to it. Millikan almost sounds like a wartime collaborator with military intelligence against Japanese Americans, except that cannot be, because of the timing after the war. Platt did not give context, but this article has supplied extensive context in the section on postwar scientific missions to Japan. Platt left out essential details: the request came from a long-time acquaintance, the physicist Waterman; the request asked specifically for scientists and engineers; the request came from the Office of Scientific Research and Development, which employed many scientists and engineers; the request was written on V-J day and was urgent.

The CNR copied Platt’s sentence into its report, without citing *Bloodlines* as its source. The sentence was copied verbatim, except for a tiny but significant change. Instead of writing, “after the war ended,” the CNR wrote “ca. 1945.” Crucially, in the CNR report, it becomes possible to interpret the Millikan’s action as occurring before the end of the war.

A game of telephones is in play here, where a message becomes increasingly garbled with each repetition. The original context of postwar scientific missions to Japan is described in detail earlier. Platt leaves out essential context and makes the Waterman-Millikan correspondence sound ominous but strangely anachronistic, because of the timing after the war. The CNR report modified the date so that the exchange was no longer unambiguously after the war.

The final stage of the game of telephones is provided by Nidhi Subbaraman, writing for *Nature*. The year has been altered from 1945 to 1942, from the end of the war to the beginning of internment. No trace remains of

the original historical context of postwar scientific missions to Japan. The Waterman-Millikan correspondence on scientific recruitment was falsely reported the following way in *Nature* [92].

During the Second World War, as the United States began a nationwide effort to imprison civilians living in the country who had Japanese ancestry, Millikan collected the names and addresses of Japanese students who had studied at Caltech in the previous two decades and passed the list to the US military. – Subbaraman, *Nature* 2021

This is simply false. From the syntax of Subbaraman’s sentence, it is recognized as being derived from *Bloodlines* as modified by the CNR report. However, the game of telephones has fully corrupted the meaning. The corruption progressed from original sources, to Platt, to the CNR report, and finally to *Nature*. At each stage, the meaning changed unjustifiably in the same direction: always to injure Millikan’s reputation and never to bring him favor.

4 Eugenics in 1938

According to Caltech President Thomas Rosenbaum, “The most intense concerns at Caltech center on Robert A. Millikan,” because he “lent his name and his prestige to a morally reprehensible eugenics movement that already had been discredited scientifically during his time” [81]. This section analyzes the evidence in the CNR report in support of the claim that the eugenics movement had been scientifically discredited by 1938 [80].¹⁵ The discussion is restricted in scope to scientific claims and does not treat the moral and political dimensions of the eugenics movement. The word *eugenics* evokes many connotations; a starting point is the Oxford English Dictionary definition of eugenics: “the study of how to arrange reproduction within a human population to increase the occurrence of heritable characteristics regarded as desirable.” From this starting point, the definition diverges in many directions [100, p. 44] [51].

The CNR report presents statements from three of Millikan’s scientific contemporaries (Lancelot Hogben, Hermann Joseph Muller, and Thomas Hunt Morgan) to establish by their authority that eugenics had “fallen into disrepute” by the late 1930s [80].

4.1 Hogben

The first of the committee’s three authorities against eugenics was the medical statistician Lancelot Hogben (and author of the 1936 best-seller *Mathematics for the Million*). According to the CNR report, “In 1931, geneticist Lancelot Hogben declared that ‘all the verifiable data eugenicists had accumulated on the inheritance of mental traits could “be written on the back of a postage stamp”’” [80,85]. In truth, Hogben declared no such thing. In fact, what Hogben actually wrote was that

all existing and genuine knowledge about the way in which the physical characteristics of human communities are related to their cultural capabilities can be written on the back of a postage stamp. . . . there is as yet no biological knowledge bearing on the social capabilities of different ‘races’ . . . –Hogben (from Hogben’s 1937 preface to *Half-caste* [20] and reprinted in [41, p. 47])

In the preface to the book *Half-caste*, Hogben built an argument that children of mixed marriages should be afforded the same cultural advantages as other children. The subject matter was not eugenics, and it was reckless scholarship to alter Hogben’s statement to make it appear to be.

Hogben himself wrote more than a postage stamp’s worth about eugenics, which is the subject of the entire last chapter of his book *Genetic Principles in Medicine and Social Sciences* (1931) [40]. Hogben’s principled stance of scientific detachment kept him from making policy recommendations. Nonetheless, despite the detachment, Hogben most certainly did not view eugenics as scientifically unfeasible.

He noted, “Eugenics was defined by [Francis] Galton as the study of agencies under social control which may improve or impair the racial qualities of future generations. With such a proposal it is difficult to see that any reasonable person would disagree” [40, pp. 209–210].

Hogben wrote that he “would prefer to use the term ‘genetic therapy’ for the legitimate province of applied human genetics,” because of negative political associations that the term *eugenics* had acquired by 1931. Nevertheless, eugenicists have begun “to write with greater caution” in the past two decades. “[W]e can agree about certain disorders which practically all comparatively healthy people would wish to remove” [40, p. 213].

In California, eugenic practice took the form of a large sterilization program. The state government ran several hospitals for the care of those with mental illness or intellectual disabilities. During the years 1909–1979, over

¹⁵ This section continues to refer to the Committee on Naming and Recognition (CNR) as the CNR or simply *the committee*. The *report* refers to the CNR report. HBF refers to the Human Betterment Foundation.

twenty thousand patients at those hospitals were sterilized [88]. The “operations were ordered at the discretion of the hospital superintendents,” as authorized by California law [100]. About three-quarters of sterilizations in California in 1936 were performed by request or consent of the patient or guardian [32, Popenoe:18:01], [100].^{16,17}

About sterilization laws in California, Hogben wrote, “As a precautionary measure, there do not seem to be any strong arguments against Californian laws on administrative or clinical grounds. So long as the advocates of such a policy do not claim that it is more than a precautionary measure, it would be unreasonable to criticise the results achieved so far, . . .” [40, pp. 207–208].

In summary, the committee used a fabricated “postage stamp” quotation to attribute views to Hogben that he did not hold. In truth, Hogben claimed it is “difficult to see that any reasonable person would disagree” with eugenics in Galton’s sense of the word.

4.2 Muller

We turn to Caltech’s second scientific witness against eugenics in the 1930s. The CNR report states that

Also in 1932, future Nobel laureate H.J. Muller denounced eugenics as an “unrealistic, ineffective, and anachronistic pseudoscience” in his paper “The Dominance of Economics Over Eugenics.” [80, p. 13] [85].

This quotation is also a fabrication. Muller made no such denunciation. On the contrary, that very paper declares, “That genetic imbeciles should be sterilized is of course unquestionable. . .” [67, p. 40].

What did Muller mean by the dominance of economics over eugenics? His “dominance” paper was an address to the Third International Congress of Eugenics in 1932. Muller had become a devoted Marxist. The address was a Marxist critique of capitalism, where he proclaimed an “impending revolution in our economic system” [67]. Muller’s New York audience was probably bewildered by his heavy-handed ideology. “Muller was convinced that his eugenic ideas could only flourish in a socialistic state” [1, p. 351]. Marxism and eugenics went hand in hand: Marxism to fix the environment and eugenics to fix heredity. Socialism claimed dominance over eugenics because revolution was nigh at hand. “In place of the economic conditions imposed by the class struggle, entirely new conditions will be substituted. . . . True eugenics can then first come into its own, . . . Thus it is up to us, if we want eugenics that functions, to work for it in the only way now practicable, by first turning our hand to help throw over the incubus of the old, outworn society” [67].

True to his beliefs, Muller, who was born in New York, established a lab in the Soviet Union. His timing could hardly have been worse. “It was not long before he realized that the conditions for the development of a Bolshevik eugenics were less promising than he had assumed” [74, p. 579]. Muller’s 1936 book, *Out of the Night*, did not please Joseph Stalin, and he fled the Soviet Union under inauspicious circumstances.

According to the historian Garland E. Allen, Muller’s book “occupies a significant place in the history of eugenic writing” [1]. Muller wrote, “Thus we see that only the eugenics of the new society, freed of the traditions of caste, of slavery, of colonialism, can be a thorough-going and true eugenics” [69, p. 150].¹⁸

In time to come, the best thought of the race will necessarily be focused on the problems of evolution – not of the evolution gone by, but of the evolution still to come – and on the working out of genetic methods, eugenic ideals, yes, on the invention of new characteristics, organs, and biological systems that will work out to further the interests, the happiness, the glory of the god-like beings whose meagre foreshadowings we present ailing creatures are. – H. J. Muller, 1936 [69, p. 156]

The geneticist Elof Carlson, who received his PhD under Muller’s mentorship, discovered evidence that Muller had suggested in private that Stalinesque coercion might be used should voluntary programs fail. In Carlson’s words, Muller envisioned that eugenic “controls might be imposed as a second step, just as, after the Soviet Revolution, the land was given to the peasants, but when agriculture remained as backward as under the czars, Stalin had to impose a strict control over the land, collectivizing the farms, . . .” [13, p. 186].

Hogben, Muller, and Caltech geneticist Dobzhansky all signed the “Geneticists’ Manifesto” at the 1939 International Congress of Genetics. An article about Ronald Fisher’s involvement in eugenics states that

¹⁶ Calculations of consent rates were based on signed consent forms. However, standards of written consent in the 1930s compare unfavorably with ethical and legal standards of informed medical consent today. In some cases, hospital release was contingent on consent to sterilization [89]. In an analysis of the reasons for lack of consent among Spanish-surnamed patients during the years 1935–1944, the most frequent reason was that “no consentor was available” [55, p. 148].

¹⁷ A strong distinction should be made between voluntary and involuntary sterilization. Worldwide today, almost half of all “women of reproductive age (or their partners) are contraceptive users” [71]. According to data from a recent study in *Lancet*, sterilization is still the most common form of birth control in the world with prevalence around 26% [34]. Decades of sterilization research (including Paul Popenoe’s at the HBF) have shaped our understanding of worldwide contraceptive practice today.

¹⁸ Magnus Hirschfeld held eugenic views similar to those of Muller and quoted this particular sentence in his 1938 book *Racism* [39, p. 174].

this document was signed by 23 leading geneticists, including some with strongly left-wing political views like J.B.S. Haldane, H.J. Muller and Lancelot Hogben. It started with the question “How could the world’s population be improved most effectively genetically?” They went on to say that “the raising of the level of the average of the population nearly to that of the highest now existing in isolated individuals . . . would, as far as purely genetic considerations are concerned, be possible within a comparatively small number of generations”. This goes far beyond the proposal of Fisher’s, . . . and shows that eugenic ideas were widely held across the political spectrum at the time (see Paul 1984 [74] for further discussion).– Bodmer et al. 2021 [12].

The manifesto called for a process of “conscious selection” to replace natural selection in human evolution. “The most important genetic characteristics” for conscious selection should be health, intelligence, and prosocial behavior [19]. Some – including Muller, J.B.S. Haldane, and Julian Huxley – “continued to argue the case for eugenics into the 1960s . . .” [74, p. 589]. Just months before his death in 1967, in his last public address, Muller proposed gene selection to enhance cooperative behavior among humans [1, p. 352] [68].

4.3 Morgan

The committee’s final scientific witness against eugenics was Thomas H. Morgan. The CNR report states, “By this time [1937], many geneticists – including Nobel laureate and Caltech professor Thomas H. Morgan – had already denounced eugenics for its lack of scientific merit” [80, p. 21]. “In 1925, in his book *Evolution and Genetics*, Morgan criticized eugenics for its interpretation of ‘feeble-mindedness’ and its insistence on the genetic basis for such characterological traits” [80, p. 13].

Indeed, Morgan’s book does contend that based on available evidence it would be “extravagant to pretend to claim that there is a single Mendelian factor for this condition” of feeble-mindedness [66, p. 201]. He stated that until certain questions “are better understood it is impossible to know how far observed differences are innate and how far acquired” [66, p. 200]. On display here is Morgan’s modesty in the face of enduring questions about heritability.

He then expressed his opinions more fully.

Lest it appear from what has been said that I have too little faith in the importance of breeding for mental superiority I should like to add that I am inclined to think that there are considerable individual differences in man that are probably strictly genetic, even though I insist that at present there is for this no real scientific evidence of the kind that we are familiar with in other animals and in plants. I will even venture to go so far as to suppose that the average of the human race might be improved by eliminating a few of the extreme disorders, however they may have arisen. In fact, this is attempted at present on a somewhat extensive scale by the segregation into asylums of the insane and feeble-minded. I should hesitate to recommend the incarceration of all the relatives if the character is suspected of being recessive, or of their children if a dominant. . . . How long and how extensively this casual isolation of adults would have to go on to produce any considerable decrease in defectives, no informed person would, I should think be willing to state. – T. H. Morgan [66, p. 206].

In summary, in 1925 Morgan tentatively believed that there were significant individual differences that “are probably strictly genetic.” He did not condemn eugenic practices in the asylums. However, he hesitated to recommend extending incarceration to relatives.

Morgan agreed to join the board of the Human Betterment Foundation (HBF), a eugenic research and advocacy group based in Pasadena, California.¹⁹ In a letter to board member William B. Munro on March 17, 1942, the founder Ezra S. Gosney wrote,

Dr. T. H. Morgan has promised me that he would serve. I was very glad to find that he approves our 8-page pamphlet, and in reply to my request for constructive criticism he said “I would not change a word in the pamphlet, it is all right.” He has manifested more interest in our work than I had expected him to show. –Gosney, 1942 [32, 01:04:26]

The eight-page pamphlet refers to *Human Sterilization Today*, authored by Gosney in 1937 [31]. Morgan was voted unanimously onto the board, but because of Gosney’s death later that year, Morgan’s participation was cut short.

The next section will present Millikan’s views on eugenics. Morgan surpassed Millikan in eugenic piety by approving the pamphlet. There is no evidence that Millikan ever read the pamphlet or endorsed it. Board members were free to disagree: board membership did not imply endorsement of the pamphlet.²⁰

¹⁹ For unexplained reasons, the committee chose to judge Morgan and Millikan by entirely different standards: one man deemed good and the other evil.

²⁰ According to Gosney, “Dr. Munro was *against* our first print [of *Human Sterilization Today*], Dr. Robert Freeman favored . . .” [32, 01:01:23–25]. Munro’s name appears in the pamphlet as a board member, *despite his opposition* to the publication.

4.4 Millikan

The eugenics movement was a *big tent* that transcended national boundaries and political ideologies [10,87]. In 1938, Haldane felt that these questions “cut right across the usual political divisions” [36, p. 9]. “Many eugenicists had very low regard for one [an]other and routinely disagreed with others in the community” [100, p. 45]. These squabbles did not signal the end of the movement. Further evidence could be presented that the scientific community was not united against the feasibility of eugenic interventions in 1938. However, the committee’s case has been amply refuted by its own witnesses.

Where did Millikan fit into the eugenics movement? He was a bit player. His name does not appear in the definitive histories of eugenics, and biographies of Millikan do not mention eugenics. Caltech emeritus professor Daniel J. Kevles, who is a leading authority on both Millikan and eugenics, did not mention Millikan in his history of eugenics [48]. Overwhelmingly, Millikan’s most significant contribution to the biological sciences was his part in establishing Caltech’s division of biology [46]. Caltech was his legacy.

The following context is relevant to understanding Millikan’s relationship with the California eugenics movement.

1. In 1938, Millikan became a board member of the Human Betterment Foundation.²¹ He did not attend the annual board meetings. Millikan’s non-participation is documented in the form of signed proxy-vote slips that are in the Caltech archives for those years that the board met [32]. By the time Millikan joined, the foundation was dying. Gosney was old, and his health was failing. Research projects at HBF had come to an end by May 1937, when Paul Popenoe resigned from the organization [32, Reid:08:14:49]. In its final stage, the foundation’s only significant activities were the management of its real estate assets and the distribution of old pamphlets.²²
2. The foundation closed down after Gosney’s death in 1942, and its assets were eventually donated to Caltech. In consultation with Gosney’s daughter, it was Millikan who redirected the funds *away* from sterilization research [65].
3. Millikan and other public intellectuals of the 1930s sponsored an enormous number of civic organizations, events, and causes. The vast array of causes that Millikan endorsed has never been catalogued. His *Nachlass*, which is more than 125,000 pages, records many of them [61]. For Millikan, the HBF was a drop in the ocean. Millikan’s permission to use his name was often no more than words to the effect “I am willing to agree to the use of my name as you suggest” [61, 45:433]. Sometimes these endorsements were recognized by a seat on the board of these organizations. These honorary positions do not generally mean that Millikan governed the organizations. Millikan viewed this system of patronage as wholesome, but it was imperfect at best. He once complained that “executive committees over which the sponsors have no control make commitments and take actions which the sponsors might warmly oppose” [61, 41:183]. Privately, Millikan murmured that John Dewey and Albert Einstein endorsed causes they knew little about, yet Millikan was also guilty.²³ Millikan grumbled, “One of my friends tells me that my name is being so used . . . as to let the public think that I am thoroughly familiar with its activities and am one of its sponsors, when the facts are that I have known nothing whatever about the management or the program . . . for something like twenty years. . . .” “I cannot look up even a tenth part of the institutions seeking my sponsorship” [61, 42:359].
4. Because the committee did not have access to Millikan’s own statements on eugenics, its report was largely speculative. The committee relied on private words of praise (phrases such as “magnificent job”) from Millikan to Gosney to infer that Millikan’s beliefs were the same as Gosney’s [80, p. 16].²⁴ However, it is rash to presume that Millikan believed what Gosney did. These were the words of appreciation from a university executive to a philanthropist, written in response to Gosney’s “generous gift” and “philanthropic enterprises.” Gosney was wealthy and “supported countless charities and educational programs” in addition to the HBF [95, 1.3:119].
5. After the CNR report was issued, two statements about eugenics in Millikan’s own words surfaced. These direct statements from Millikan supersede the committee’s speculations. His first statement was made to a crowded auditorium during an event organized by the Ebell of Los Angeles women’s organization in 1925. Millikan spoke out in strong opposition to eugenics, denouncing the race degeneration theories of Albert Edward Wiggam and Lothrop Stoddard [90,102]. Millikan maintained that “conscious selection by eugenics. . . has not been done nor

²¹ The CNR report states that Millikan joined in 1937, but the correct date is 1938. He replaced the banker Henry Mauris Robinson on the board, who died on November 3, 1937. Gosney wrote a letter on January 19, 1938 describing plans to ask Millikan to join: “We could promise him [Millikan] that it would require a minimum of his time” [32, Gosney:08:13:17].

²² The foundation owned a six-story loft building in Los Angeles, business property in San Bernardino, and ranch property [32, Castle:08:14:60].

²³ Voluminous FBI files catalogue many of Einstein’s endorsements. The comparison between Einstein and Millikan is instructive. Should Einstein’s endorsements and offensive travel diaries be evaluated today by the same standard as Millikan’s endorsements and mean-spirited private remarks [24]? Many (including the author) might find this standard too severe.

²⁴ In a 1945 letter to Clarence Gamble, the heir of the Proctor and Gamble fortune, Millikan referred to the establishment of the Human Betterment Foundation as “epoch-making” [61, 28:441].

do I think it possible to do on any large scale throughout the world. . . . We can't control the germ plasm but we can control education" and consequently, education was the "supreme problem" and a "great duty" [70].

6. Millikan's second statement on eugenics appeared fourteen years later in a 1939 article *Science and the World of Tomorrow*, which contained his forecast of how science might change "life in America fifty or a hundred years hence" [62]. He readily admitted that "the possibility that something so completely foreign to my thinking may happen as to make any prognosis that I may hazard now look ridiculous in the years to come, . . ." This article was written not long after he joined the Human Betterment Foundation (HBF). If we are looking for the message that Millikan might have delivered to the HBF had he ever attended a board meeting, it is here that we should look. He wrote,

I have no doubt that in the field of public health the control of disease, the cessation of the continuous reproduction of the unfit, etc., big advances will be made, but here I am not a competent witness, and I find on the whole those who are the most competent and informed the most conservative. – Millikan, 1939 [62].

There is no mention of specific methods such as sterilization. There is also no suggestion of the use of coercion. He does not endorse current practices, but looks to the indefinite future; "advances will be made" in the coming fifty or hundred years. He is cautious. He humbly professes his lack of expertise. This brief statement is all we have; no others have surfaced. His statement falls at the conservative end of the range of views held by Caltech geneticists of that time.²⁵ As this section has documented, Millikan held milder views than the committee's three witnesses against him.

5 Conclusions

Millikan was one of the greatest experimental physicists in the world during the early decades of the twentieth century. He made fundamental contributions to the isolation and measurement of the electron charge, the experimental verification of Einstein's photoelectric equation, the measurement of Avogadro's number and Planck's constant, the study of spectral lines of ionized atoms, and the understanding of cosmic rays. He spurred the growth of American science not only through his many contacts with Bell Labs and the almost countless number of graduate students he supervised but also through his best-selling physics textbook. At the head of Caltech during the first twenty-four years of its existence, Millikan oversaw its rapid maturation into one of the outstanding technical institutions of the world.

The CNR report's account of Millikan's scientific achievements was deficient; this article has aimed to remedy that deficiency. About Millikan's famous oil drop experiment, the Caltech report seems to have no institutional memory. The report quoted only the first sentence from an *Encyclopedia Britannica* article about the experiment. Millikan and Fletcher measured the elementary charge and electron mass. As the number of fundamental physical constants is limited, the measurement is a rare achievement in the history of science. Concerning the photoelectric effect, the Caltech report exhibited a similar lack of institutional memory, by going no further than the one-sentence banner statement from NobelPrize.org. In brief, Millikan's greatest scientific achievements were compressed to two stock sentences. By contrast, the CNR members care deeply about their own reputations by including seven pages of their bios in the report.

This article has made an extended commentary on Platt's ideas because of his ultimate influence on the decision to strip Millikan of honors. His book *Bloodlines* is an unreliable source for Millikan scholarship. Although Platt is more a storyteller than a careful historian when it comes to Millikan, his fingerprints are everywhere. Platt was cited five times in Michael Hiltzik's *Los Angeles Times* article, "Caltech faces reckoning," which made the petition against Millikan known to a large public [38]. The *Los Angeles Times* published Platt's false accusation that a quota existed at Caltech during Millikan's tenure "allowing for the appointment of only one Jewish full-time faculty member per year." More than two full pages of the archivist's eight-page report to the committee are direct quotations from Platt's book [15]. The committee itself relies heavily on *Bloodlines* (especially the error-ridden pages 124–126) but misattributes the research to others. Michael Chwe's presentation to the committee quoted Platt's book four times [14]. Like Platt, Chwe imagined far-fetched associations between Millikan and Nazi Germany. Platt's accusations that "California's elite" had "fascist sympathies" set the tone of moral condemnation. Through an escalation of rhetoric, Millikan's thoughts and deeds came to be seen as "reprehensible" (Thomas

²⁵ Morgan, who served alongside Millikan for many years on Caltech's executive council, held views that are documented above. Dobzhansky signed the 1939 manifesto, which proclaimed that a genetic transformation of the human population might be achieved "within a comparatively small number of generations." By 1946, he had revised his time estimates; a sterilization program may "take centuries or even millennia. . . . It is, perhaps, not too selfish to say that posterity should be allowed to tackle its own problems and to hope that it may have better means for doing so than we have" [22]. Decades later in 1965, Alfred Sturtevant contended that eugenics was fraught with uncertainties and difficulties [91, pp. 130–132], [53].

Rosenbaum), “horrible” (Daniel Mukasa, Caltech President of BSEC), and “crimes against humanity” (Michael Chwe). The historian Kirt von Daacke has called for us collectively to atone for this history.

Regarding the history of sterilization in California, the science historian Alex Wellerstein has stated, “We do not find Nazis in California mental health institutions” [100]. The alleged association between Millikan and Nazi Germany is refuted by Millikan’s speeches, publications, and radio addresses.

Throughout World War II, Millikan advocated for the rights of Japanese Americans. At a time when public opinion had turned overwhelmingly against Japanese Americans, Greta and Robert Millikan were both compassionate toward their Japanese friends and acquaintances. When she received a letter from her friend Elizabeth Ozawa, who was in a detention camp at Tulare, Greta wrote in her diary that “things are far from right – we must keep alert and busy on our Fair Play Committee” [61, 80:132]. Robert Millikan wrote to Hori that “your letter touched me deeply” and to Kido that he had been doing all he could to assist “the many who are likely to suffer unjustly in this difficult situation.” For Millikan, who regularly executed his plans through a broad network of committees, it was natural to reach out to a committee that shared his views on Japanese-American rights. He became a vice president of Fair Play, which worked tirelessly to change public opinion on Japanese-American issues and had a significant impact on public policy.

Bloodlines was the only source about Japanese internment in Caltech’s report. On Japanese policy, Platt omitted key parts of Fair Play’s recommendation of dispersed relocation, which fully recognized the right of Japanese Americans to resettle after the war wherever in the United States they pleased. He falsely described the physicist Waterman’s recruitment of Japanese scientists for postwar expeditions to Japan, making Millikan seem to be a military informant against Japanese Americans.

Remarkably, the committee selected the worst parts from the worst secondary source, without consulting any primary sources on Japanese internment. Here, *worst* is meant both in the sense of being historically inaccurate and of being hostile toward Millikan. The report did not mention Millikan’s significant participation in Fair Play. The report severely misrepresented the confrontation between State Assemblyman Gannon and Millikan; in fact, it was Gannon who opposed Japanese-American rights and Millikan who supported their rights. Finding itself at the final stage of a game of telephones, *Nature* falsely accused Millikan of colluding in a military roundup of Japanese for imprisonment at the beginning of the war. Not only is this accusation false, it is a complete reversal of historical fact. Millikan, who was one of a small minority who actively promoted Japanese-American rights during the war, received the Kansha Award, which recognizes “individuals who aided Japanese Americans during World War II” [73].

After a discussion of Millikan’s views on Japanese internment, this article turned to the California eugenics movement. According to Rosenbaum, Caltech’s most intense concern was Millikan’s association with a eugenics movement that had already been discredited. The committee expanded the accusation, claiming he “failed to perform the due diligence” and was “derelict in this duty” to ensure that the HBF had its “science right” [80].

Alas, it was the committee that failed to perform due diligence. The committee cited three authorities to prove that the eugenics movement had been discredited scientifically by 1938. In a dramatic denouement, all three of the committee’s authorities had various degrees of eugenic involvement at that time. Two of them signed the pro-eugenic Geneticists’ Manifesto in 1939, which proclaimed, “The truth that both environment and heredity constitute dominating and inescapable complementary factors in human wellbeing, but factors both of which are under the potential control of man and admit of unlimited and interdependent progress” [19].

In the committee’s view, “The hereditary nature of human behavior and character had fallen into disrepute within various quarters...” by 1937 [80]. Millikan, who believed that education could be controlled but not the germ plasm, did not hold strong hereditarian opinions. The committee was quick to condemn the hereditarians of that era, but it would be rash to pass sentence, without grounding that judgment in recent science. To summarize in a few sentences, the statistical concept of heritability provides a scale that quantifies environmental and genetic influence. Evidence in support of rather high heritability of intelligence and various human traits is presented in [35,77,97]. Richard J. Haier, who pioneered the use of neuroimaging in intelligence research, has written, “Although the full role of genes is not yet known, the evidence for major genetic involvement in intelligence is overwhelming” [35].

Nobody proposes a return to the California sterilization practices of the 1930s. According to Wellerstein, sterilization rates in California declined sharply in the early 1950s for bureaucratic rather than moral reasons. “No one took credit for killing the practice, and no one at the time appears to have noticed that it had ended.” “The horror we attach to sterilizations today, and to eugenics in general, did not become widespread until the 1970s, with the rise of interest in patient autonomy, women’s rights,” among other reasons [100, pp. 49–51]. During earlier decades, the largest institutional force in moral opposition to eugenics had been the Roman Catholic Church [23]. However, today the moral outrage at Caltech has grown out of the Black Lives Matter movement and was directed toward the cause of “dismantling Caltech’s legacy of white supremacy” [80,82]. Technologies have also changed in irreversible ways since the 1930s, precluding a return to the past: birth control and genetic engineering have advanced far beyond the capabilities of the sterilization era [60].

The committee depicted Millikan as a morally deplorable man and relied on fabricated quotations to buttress its case. To be clear, the committee was not the original source of the fabricated quotations it used. Nevertheless,

the words ring false. When the fabrications are corrected, the central accusations against Millikan crumble. It is telling that the evidence unravels so sensationally. Although Rosenbaum claimed that the committee reached its conclusions “by close reading of primary sources,” his statement is not credible [81].

This article has focused on Millikan, but the larger message of the CNR report is diversity. The word *diversity* and its inflections are used 78 times in the 77-page CNR report, occurring as many as nine times per page. The report, which is hosted by the Caltech diversity website, makes repeated reminders that Caltech has an “ongoing effort to forge a diverse and inclusive community.”

The CNR was part of a package of diversity reforms at Caltech, which included a new admissions advisory committee [80, p. 46]. Until recently, Caltech was unique among the most elite. The Pulitzer Prize winning journalist Daniel Golden has written on admission practices at elite American universities. Not long ago, Caltech boasted that on matters of admission, it made “no concessions to wealth, and it won’t sacrifice merit for diversity’s sake” [29, p. 278]. David Baltimore, past president of Caltech and a member of the CNR, told Golden, “People should be judged not by their parentage and wealth but by their skills and ability, . . . Any school that I’m associated with, I want to be a meritocracy.” Golden wrote that “he assured me that Caltech would never compromise its standards” [29, p. 284].

Never say never. The era of uncompromising standards at Caltech has come to an end. The *Los Angeles Times* reported on August 31, 2023 that Caltech is making historic changes to its admission standards. “In a groundbreaking step, the campus announced Thursday that it will drop admission requirements for calculus, physics, and chemistry courses for students who don’t have access to them and offer alternative paths. . . .” “Data . . . showed a significant racial gap in access to those classes.” Caltech’s executive director of undergraduate admissions explained the new policy in these terms “I think that we’re really in a time where institutions have to decide if everything that they’ve been saying about diversity and inclusion is true,” she said, noting that the challenge is especially acute now that the U.S. Supreme Court has banned affirmative action. “Is this something fundamental about who we are as an institution . . . or is this something that was just really nice window dressing?” [98].

The action against Millikan has been one campaign within a much larger political movement. Millikan himself had this to say about those who engage in mean-spirited attacks against America’s finest [61, 70:535]:

To attempt to spread poison over the United States with respect to the characters and motives of the finest, ablest and most public spirited men whom America has recently produced is resorting to a method which, it seems to me, all men of honesty and refinement can only abhor and detest. – Millikan

The following remedies are recommended. President Rosenbaum and the Caltech Board of Trustees should rescind their endorsement of the CNR report. The report itself should be retracted for failing to meet the minimal standards of accuracy and scholarship that are expected of official documents issued by one of the world’s great scientific institutions. Caltech should restore Robert Andrews Millikan to a place of honor.

To be sure, Caltech has stirred up a hornets’ nest.

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