

The Influence of Ernst David Bergmann on Israeli Science Policy

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Schlenk and Germany

Ernst David Bergmann (figure 1) was born on 18 October 1903 in Karlsruhe, Germany, the eldest of eight children born to Hedwig Rosenzweig and Yehuda Bergmann – a rabbi and Zionist who had immigrated to Germany from the Western Ukraine early in his career. Ernst was trained in the field of organic chemistry at the University of Berlin under the guidance of the prominent organometallic chemist, Wilhelm Schlenk, receiving his doctorate, *summa cum laude*, in 1924 at age 21. This was followed by eight years as Schlenk's personal assistant and as a Privatdozent in Schlenk's Chemical Institute at the University.

With the coming of Hitler and the Nazis to power in January of 1933 and the passage of the Civil Service Restoration Act in April of that year, Bergmann suddenly found himself without a job in a country that was overtly, if not violently, hostile to those of Jewish descent. By the end of 1934 Bergmann and all of his immediate family had left Germany and, with the exception of one of his younger brothers, all would manage to survive the coming Holocaust, either through immigration to Palestine or by seeking temporary refuge in either Sweden, England or France.

As early as May of 1933 Bergmann had written to the prominent Jewish Zionist and chemist, Chaim Weizmann, asking to be considered for a position in the newly established Department of Chemotherapy at the Hebrew University in Jerusalem, using Schlenk and the prominent German-Jewish organic chemist, Richard Willstätter, as his references. As events turned out, the new Chemotherapy Department was just a rumor. However, Weizmann was so impressed by both Berg-



Figure 1. Ernst David Bergmann as he appears on the cover of our recent biography of him. Our coauthor, Milton Orchin, unfortunately passed away in 2013,

mann's references and his credentials (he had already published more than 60 research papers and a textbook), that he instead offered Bergmann the directorship of the new research institute he was building in Rehovot, Palestine, to be called the Daniel Sieff Institute in honor of the deceased son of the wealthy family that had endowed it. Included in the offer were also

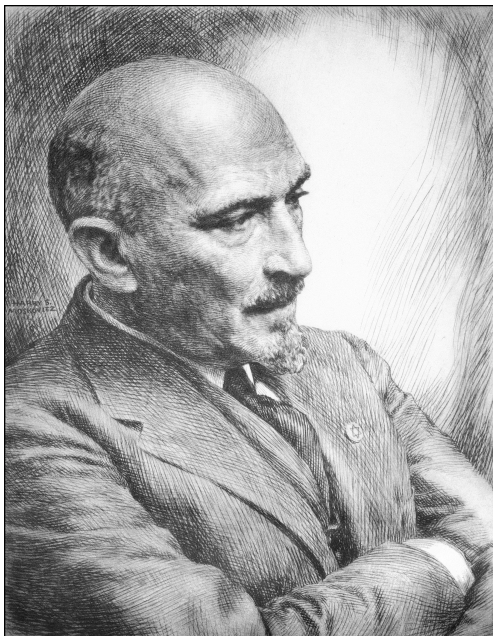


Figure 2. Chaim Weizmann
(1874-1952)

positions at the Institute for Bergmann's first wife, Otilie Blum, who was likewise a trained chemist, and for his younger brother, Felix Bergmann, who had just received his doctorate in biochemistry, also from the University of Berlin.

Since the Sieff Institute was still under construction, Bergmann and Otilie spent the remainder of 1933 working in Weizmann's private laboratory in London. In January of 1934 they finally arrived in Rehovot, where, for the next 17 years, Bergmann would act as Weizmann's faithful right-hand man and scientific collaborator in fulfillment of the pledge he had made in that first letter in May of 1933 asking for possible employment at the Hebrew University:

I want to assure you, most revered Herr Professor, that it would be a great happiness and a great distinction if I, in my profession, could prove useful to our country, and that I would dedicate all of my strength to the task.

Weizmann and Palestine

To the extent that it makes sense to talk of Bergmann's influence on Israeli scientific policy in the years prior to the official founding of Israel in 1948, that influence is a reflection of the extent to which he supported and implemented the science policies of Weizmann himself (figure 2). Weizmann had first visited Palestine in 1907. He found a country virtually devoid of modern industry and educational institutions and, even more

seriously, one that was totally lacking any indigenous sources of fossil fuels. This led him to oppose the more militant "political" branches of Zionism with their insistent demands for the immediate immigration of millions of European Jews to Palestine. Even if this were permitted by Turkey, which ruled Palestine at the time, and by the various European powers, it would, in Weizmann's opinion, result only in a massive economic disaster for both the country and the immigrants. Instead Weizmann advocated what he called "practical" Zionism in which Palestine was to be gradually prepared for Jewish settlement through the founding of the necessary educational, cultural, and industrial institutions.

Relative to the first two categories, during these early years Weizmann would play a role in the founding of, among others, the Hebrew University at Jerusalem, the Technion at Haifa, the Jewish National Library, and, of course, both the Sieff Institute and an accompanying Agricultural Experimental Station at Rehovot. However, in the case of his various industrial ventures, his success rate was a good deal more spotty. Reflecting his training as a chemist, most of these were linked in some fashion to chemistry and included the laying of the basis of an orange juice industry at Rehovot, attempts to chemically exploit the salt deposits of the Dead Sea, to start an essential oils business, and to found a pharmaceutical plant.

The only one of these ventures in which Bergmann played a role was the pharmaceutical project for which he did most of the preliminary background research, such as determining what drugs it was practical to synthesize, locating local sources of the necessary chemical starting materials, what the pricing structure should be, who the potential customers were in the Mideast, etc. The project did not enter the production stage until after the outbreak of World War II, most of which Bergmann spent working with Weizmann in either England or the United States, so that the actual physical implementation of the project fell to others.

During these war years Bergmann's energies were instead largely consumed by three more of Weizmann's personal projects. The first was a new process for refining petroleum known as the "Catarole" process – an acronym for "catalytic aromatization of olefins." The second was a new process for making butene – an essential material for the production of synthetic rubber – from the butanol by-product formed in Weizmann's famous fermentation process for the production of acetone from corn mash. And the third, which came at the very end of the war, was organizing the details for the future expansion to the Sieff Institute into the current Weizmann Institute, for which Bergmann was to serve as the first Scientific Director.

Though a pilot plant was constructed in England for the Catarole process shortly after the end of the war, it was soon displaced by alternative methods of refining petroleum and quickly fell out of favor. As for the second project, despite intense lobbying of Congress on the part of Weizmann, the United States Synthetic Rubber Project opted instead for other routes to butene based on the use of petrochemicals rather than agricultural production. Only the third project would bear fruit with respect to the future development of science in Israel, though ironically, as we will shortly see, without the participation of Bergmann.

The most intriguing of Weizmann's various projects during this period revolve around the question of where the future State of Israel would obtain the energy required to sustain its economy. Here Weizmann decided to explore three possibilities. The first was petroleum, which was rapidly displacing coal, not only as an energy source but as the source of the organic chemicals that underlay the fine chemicals industry and the production of everything from drugs and dyes, to plastics, synthetic fabrics, and artificial rubber. It was this route that had led to Bergmann's work on the Catarole process. This, as we just saw, was ultimately a failure and, in any case, the major sources of petroleum production at the time were located in Arab countries that were unlikely to prove friendly to any future Jewish State. Its only lasting effect in Bergmann's case was a short monograph on the thermal isomerization of hydrocarbons which he published in 1948.

The second energy source was, of course, coal. Though the United States, because of the rapid rise of the automobile industry and its dependence on gasoline and oil, had almost completely switched its chemical industry from a coal basis to a petroleum basis in the years before the outbreak of World War II, the same was not true of Great Britain and most of the industrialized European countries – countries with large indigenous coal deposits that were likely to prove far more friendly to any future Jewish State than the Arabs.

Most petrochemicals are ultimately traceable to the ethylene produced via the cracking of crude petroleum. This single substance acts as the source or stem for the vast array of chemicals and products produced by the modern petrochemical industry. Already in the 1930s Weizmann had become aware that chemists at I. G. Farben, under the leadership of a German industrial chemist named Julius Reppe, had begun exploring the possibility of constructing an alternative fine chemicals industry based instead on use of acetylene rather than ethylene – acetylene derived, in turn, from coal, of which Germany had ample deposits, rather than from petroleum, of which it had virtually none. Indeed, during their stay in Weizmann's private London laboratory

in 1933, Otilie Bergmann had been assigned the task of constructing a bibliography on the subject, and Bergmann himself would devote time to this project in the years prior to the war. In the end, however, it proved to be economically impractical for both Germany and Weizmann and the only net result, as in the case of the Catarole project, was a small monograph on the chemistry of acetylene that Bergmann would publish, also in 1948.

It is, however, the third energy source explored by Weizmann that is the most intriguing. Weizmann would summarize both the problem and his proposed solution in his famous autobiography, *Trial and Error*, first published in 1949:

The question of oil ... which hovers over the Zionist problem, as it does indeed over the entire world problem, is a scientific one. It is a part of the general question of raw materials, which has been a preoccupation with me for decades, both as a scientist and as a Zionist, and it has always been my view that Palestine could be made the center of a new scientific development which would get the world past the conflict arising from the monopolistic position of oil.

Generalizing his early success with the Weizmann fermentation process for the production of the acetone so badly needed by the British during World War I for the processing of the high-explosive cordite, Weizmann now envisioned a new energy supply and associated chemical industry based on the fermentation of renewable agricultural resources rather than on non-renewable fossil fuels. If one could grow crops having a large starch content in either Palestine or Africa, then ...

... one could introduce a fermentation industry into that part of the world with a large yield of ordinary alcohol [i.e., ethanol], both for power and for the production of butyl alcohol and acetone. These three materials, in large quantities and at a low price, could form the basis of two or three great industries, among them high octane fuel ... Its most attractive feature is, perhaps, that it is not tied to a geographical point, like an oil supply, but is applicable wherever the substances I have mentioned can be grown. It is, moreover, part of what I believe to be a necessary and probably inevitable shift in a great sector of modern industry.

As Robert Bud's detailed study of the history of biotechnology shows, Weizmann was neither the first nor the last to envision such a possibility – one need only mention the "zymotechnic" movement of the 1890s, the "chemurgy" movement of the 1930s, or the

current “green chemistry” movement – but he was certainly one of the few to devote his scientific career to actively working out the specific details. Bergmann’s involvement in research designed to optimize and broaden the application of the original Weizmann fermentation process, his work on butene production from butyl alcohol, and even his work on acetylene, can all be seen as a part of this larger vision. In addition, extensive work was conducted at the Sieff Institute during these years on chemical products derivable from the carob bean. Unfortunately all such attempts – past as well as present – have ultimately failed to reach maturity because of their inability to economically compete with the petrochemical industry. However, as oil prices continue to climb and concerns about global warming continue to escalate, Weizmann’s “necessary and inevitable shift” may yet become a reality.

An About-Face

Palestine had been under British control since the end of World War I, but its mandate to govern was scheduled to expire in May of 1948. In anticipation of this event, Britain placed the question of the future of Palestine in the hands of the United Nations in April of 1947. Two possible solutions presented themselves: the formation of a federated Palestinian State having both Jewish and Arab representation, or the division of the country into Arab and Jewish regions. Both possibilities were unanimously rejected by the Arab countries represented in the UN, whereas the Zionists were overwhelmingly in favor of the second, which was formally approved by the General Assembly of the UN in late November.

From the beginning, the Zionists had made it clear that the official end of the British Mandate in May would coincide with the declaration of an independent Jewish state, and the surrounding Arab countries made it equally clear that it would coincide, in defiance of the UN decision, with a massive Arab invasion of the new state and a concerted effort to “drive the Jews into the sea.” In the five months between the UN vote and the end of the Mandate, tensions escalated in Palestine, fed in part by an unofficial conflict between the Jewish community and a so-called Arab “Army of Liberation,” composed of guerrilla fighters who had infiltrated the country from the neighboring Arab States.

Under these stresses Bergmann appears to have undergone an abrupt change in his views concerning the role of science and the state – a change which he expressed to Weizmann’s wife, Vera, in a letter written in late May of 1948:

I often wonder whether we have done right in doing in the Institute the sort of research we have carried out in these fourteen years, instead of preparing the country chemically and mechanically for the most refined of modern warfare methods.

This is a remarkable confession and was tantamount to a complete rejection of everything that Weizmann and, by implication, Bergmann himself, had worked towards during the years between the two World Wars.

Nor was Bergmann slow in implementing his new vision. Hoping to prevent bloodshed in Palestine, the United States and several other European countries had naively banned the shipment of arms to Israel, and Bergmann now felt it was his duty to supply the missing weapons required for the defense of his new country against the Arab invaders. In pursuit of this goal he converted the Sieff Institute and the partly completed buildings for the new Weizmann Institute into an arms factory designed to produce everything from tear gas, high-explosives for rockets and mortars, incendiary devices, antitank mines, and antidotes against poison gases – should the Arabs decide to use them – to such electronic devices as night-vision goggles and “Walkie-Talkies.” Not only was the staff of both institutes employed in these various projects but also a large number of workers on loan from the newly organized Science Corps of the Israeli Army, otherwise known as HEMD.

In actual fact this was not the first time Bergmann had become involved in military matters. In the years between the official approval of the British Mandate in 1920 and the end of the Second World War, there had been several large-scale riots and attacks on the Jewish community in Palestine instigated by various Arab groups opposing Jewish immigration. Feeling that the British were not adequately defending it, the Jewish community or *Yishuv* organized its own underground defense force known as the *Haganah* and there is little doubt that both Bergmann and his brother Felix, as well as other Jewish scientists, such as the Katzir brothers at the Hebrew University, acted as unofficial scientific advisors to the organization in the prewar years, often supplying it with tear gas and various explosive devices. In the case of the Bergmann brothers, these efforts centered around the manufacture of a high-explosive known as pentaerythritol, tetranitrate, otherwise known as PETN (pronounced PET-TEN). This became known publicly when a batch of this material accidentally exploded in Felix Bergmann’s laboratory at the Sieff Institute, seriously injuring a co-worker and forcing an embarrassed Weizmann to place Felix on academic leave for a year.

The Break with Weizmann

During the War of Independence Weizmann was in the United States, both monitoring events at the UN and attempting to influence State Department policy with regard to the new Jewish State. As he had done in the prewar years, Bergmann wrote detailed letters to Weizmann, keeping him fully apprised of the change in the direction of research at both the Sieff and nascent Weizmann Institutes. Unknown to him, however, was the negative response of Weizmann to these developments. Far from praising Bergmann's war efforts, Weizmann felt that he was being betrayed and that Bergmann was diverting his new institute from its intended purpose. Thus, in a letter to Meyer Weisgal in July of 1948, we find Weizmann complaining that:

... the whole Institute is switching to what is called war work. This means that the entire basis of the Institute has been changed. This has been done without any previous consultation or advice ... there is no reason that the whole of the scientific work, into which so much energy, devotion, and love has been poured, should be replaced by something which is not science but making explosives ... it literally hurts me to feel that the Institute to which I have devoted so much energy and so many hours of endeavor should be desecrated in a manner which I can neither explain or acquiesce in.

After Weizmann's triumphal and final return to Israel in September of 1948 and the official cessation of hostilities in 1949, his relationship with Bergmann continued to further deteriorate. In his opinion, Bergmann had undergone "a profound psychological change" as a result of the war and was now neglecting his duties as the Scientific Director of the newly dedicated Weizmann Institute in order to pursue his new obsession with defense research. Again, in a letter to Weisgal, we read:

Since the war our friend Bergmann is devoting himself entirely to this aspect of our life, and whereas there was some justification during the hostilities, I see no reason now why his energies should go into an effort which is neither urgent nor desirable. Bergmann behaves like a Prussian junker. War seems to be his primary consideration, everything else, including the affairs of the Institute must, of necessity, be secondary. He disappears for a day or two without even saying where he is going, leave alone for what purpose.

By 1951 Weizmann had had enough and ordered that Bergmann be dismissed from his post as Scientific Di-

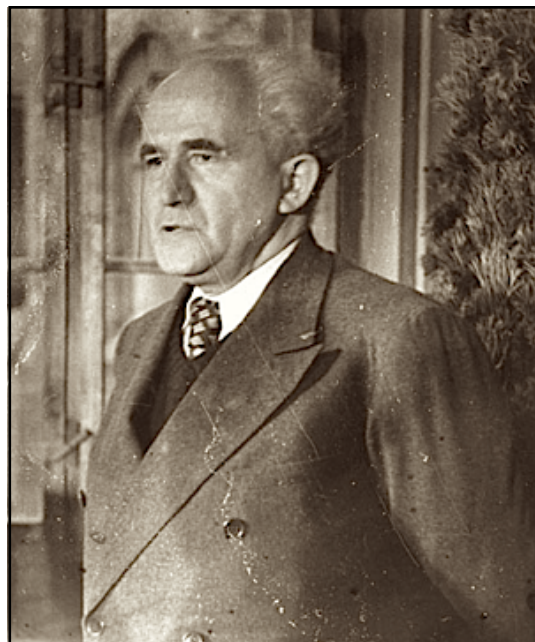


Figure 3. David Ben-Gurion (1886-1973)

rector of the Weizmann Institute, thereby bringing to an end their 18-year association and friendship. The next year Weizmann would pass away at age 77.

Ben-Gurion

Why Bergmann was disappearing for days on end had much to do with Israel's new prime minister, David Ben-Gurion (figure 3). Impressed with Bergmann's management of the defense related research conducted at the Weizmann Institute during the War of Independence, Ben-Gurion promoted him to head of HEMED in August of 1948 and in 1949 he also became scientific advisor to the Ministry of Defense. By 1950 HEMED had been split into three sections: HEMED ALEPH, HEMED BET and HEMED GIMEL, each with its own research laboratories and area of concentration, such as biological warfare or nuclear research. In addition, Ben-Gurion appointed Bergmann to a commission charged with advising the government on best way to optimize the future training and supply of competent Israeli scientists.

In July of 1951, two weeks after his dismissal as Scientific Director of the Weizmann Institute, Bergmann became Ben-Gurion's personal science advisor. On Bergmann's advice, HEMED was transferred from control of the army to the Department of Defense and its name changed to EMET, with Bergmann as its civilian director. The original three sections of HEMED were now increased to include five independent civil-

ian research institutes or “Machons.” Though Bergmann may have lost access to the personnel and resources of the Weizmann Institute, he had now effectively replaced them with a network of government supported laboratories and staff required to do his bidding – a fact no doubt related to a sudden increase in his rate of scientific publication during these years, which, on occasion, was as high as 40-45 papers per year.

The rapport between Bergmann and Ben-Gurion with regard to Israeli scientific policy has been commented on by several of their contemporaries:

Ben-Gurion loved Bergmann. Bergmann was the only outstanding scientist who fully supported him – the others were fence sitters ... In my view, Ben-Gurion accepted the judgment of Bergmann without question ... all suggestions that were brought for discussion had to be endorsed by Bergmann first, and if Bergmann was persuaded, then Ben-Gurion would be as well.

Nor is there any mystery as to the nature of that rapport. Unlike Weizmann, both Ben-Gurion and Bergman believed that the War of Independence was only the opening shot in an unending conflict between Israel and its Arab neighbors:

If the Arabs lost, they would try and try again and again and again. If the Jews lost but once, they would be doomed to extinction. The Jews must therefore prepare themselves for a prolonged and determined armed struggle.

Given Israel’s demographic disadvantage, its only hope for survival in this struggle lay in the acquisition of the most advanced military technology available – technology which was hopefully not equally accessible to its less scientifically advanced enemies.

The Atomic Bomb

The aspect of Bergmann’s career of most interest to previous historians has centered on his role in the creation of the Israeli atomic bomb. Our own work suggests that Bergmann became interested in this possibility soon after the release of the famous Smyth report by the United States government, a mere three-days after the dropping of the atomic bomb on Nagasaki. Here, after all, was the ultimate high-technology weapon and deterrent dreamed of by Bergmann and Ben-Gurion that would virtually ensure the future survival of Israel. Soon after, he made arrangements with Weizmann to send a staff member of the Sieff Institute abroad to study nuclear chemistry in France and Sweden.

Following the disruption caused by the War of Independence, Bergmann further arranged that one of the three original divisions of HEMED should be devoted to nuclear research (HEMED-GIMEL) and, after the conversion of HEMED to EMET, the same function was assigned to Machon 4. The final organizational piece was put into place on 13 June 1952 with the establishment of the Israel Atomic Energy Commission or IAEC with Bergmann as its first Chair.

Recognizing that the first step toward the acquisition of nuclear arms was to acquire competent Israeli scientists trained in nuclear physics, Bergmann convinced Ben-Gurion to provide government support to send six young Israeli physicists, who had served in HEMED during the War of Independence, abroad for advanced post-graduate training in theoretical and nuclear physics at various American and European universities, and it has been estimated that, in subsequent years, more than 56 Israeli scientists and technicians would receive advanced training in nuclear technology in the United States under the auspices of its “Atoms for Peace” program, which was first launched in late 1953.

As part of this program, in late 1954 the United States offered Israel a small nuclear reactor for research purposes only. Soon Bergmann was in the United States as head of an Israeli delegation in order to dicker with the American Atomic Energy Commission (AEC) over details. However, despite several clumsy attempts on Bergmann’s part to convince the Americans to give Israel a “more powerful reactor,” as well as lots of heavy water, it soon became apparent that they were not to be fooled. The reactor, which was eventually built at Nachal Soreq and completed in 1960, was just what the Americans intended it to be, a small reactor suitable only for research but not usable as a potential route to the development of nuclear weapons.

Meanwhile, the true Israeli nuclear program was unfolding at a site called Dimona in the Negev Desert, about 25 miles southeast of Beersheva, in collaboration with the French government. By the early 1950s Bergmann had come to the conclusion that France was the optimal choice for scientific cooperation with Israel and, in keeping with, this he began to cultivate collaborative contacts with both the French organic chemistry community and the French nuclear establishment. Just what role these contacts played in the eventual decision of the French government to provide Israel with the needed nuclear technology to develop a bomb remains unclear. The detailed study of the development of the Israeli atomic bomb by Avner Cohen suggests rather that the offer of French assistance was actually made at a much higher political level and in exchange for Is-



Figure 4. Shimon Peres
(b. 1923)

raeli involvement in the Suez Canal crisis.

Much more revealing, however, is the secondary role that Bergmann was to play in the Dimona project. It was not Bergmann, but rather his colleague at the Ministry of Defense, Shimon Peres (figure 4), who was primarily responsible for obtaining French cooperation. Likewise, it was not Bergmann, but rather an army engineer by the name of Emanuel (Mannes) Pratt who was in charge of constructing the facilities at Dimona. Indeed, because Bergmann had spent his life in the open culture of science, rather than in the secretive culture of the military, it was felt that he was a potential – albeit unintentional – security risk and, despite being Chair of the IAEC, he was denied access to the Dimona site. Nevertheless, as Cohen has emphasized, Bergmann does hold a place of equal honor, alongside of Ben-Gurion and Peres, as one of the three men most responsible for the development of the Israeli bomb: Bergmann for being the first to see the necessity of such a program and for convincing Ben-Gurion of that necessity, Ben-Gurion for providing the political mandate for the undertaking, and Peres for seeing its final successful implementation.

Fall From Favor

Not everyone was happy with Bergmann's science policies. Many academics were opposed to the system of government controlled research laboratories or Ma-

chons, feeling that much of the work done there should instead be contracted to the universities and technical schools, thereby providing them with much needed financial support. Many of their science graduates were also not happy about the prospect of employment at secretive government laboratories which denied them the opportunity to develop their own personal scientific careers through open participation in the international scientific community.

Opposition also came from other politicians and economists who felt that many of Bergmann's schemes were impractical and needlessly expensive for a small country with limited financial and natural resources. Here we must call attention to an aspect of Bergmann's policies which he inherited from Weizmann – his belief that Israel, in all of its various technical and economic undertakings, had to become self-sufficient so as not to be dependent on outsiders who might desert her in times of crisis. In the case of the nuclear program, for example, this took the form of a scheme on Bergmann's part to make Israel independent of outside sources of uranium by extracting it from the minute quantities present in various phosphate deposits in the Negev as a by-product of a projected phosphate fertilizer industry. His opponents, on the other hand, felt it was always possible to obtain necessary resources and technology, whether it be oil, conventional military weapons, or nuclear technology, from outside vendors either directly or indirectly, and in many cases they were proven correct.

Though Bergmann and Ben-Gurion were of one mind, the existence of this opposition meant that Bergmann's policies were vulnerable to dismemberment should Ben-Gurion ever fall from power. Indeed, an unpleasant foretaste of what was to come occurred in 1953 when Ben-Gurion temporarily decided to retire and was replaced by Pinhas Lavon as Minister of Defense and Moshe Sharett as Prime Minister. Lavon immediately began disassembling Bergmann's nascent nuclear program and also began questioning the necessity of several other of the research Machons run by EMET. Luckily much of this damage was undone when Ben-Gurion returned to office again in 1955 after Lavon's disgrace in the so-called "Lavon Affair." As a result, the ultimate reckoning was postponed until 1963, when Ben-Gurion retired once more and was succeeded by Levi Eshkol. In an attempt to prevent a repeat of the Lavon fiasco, Bergmann prepared a massive document for Eshkol outlining his vision of the future technological and scientific challenges facing Israel in virtually every field from agriculture to electronics. This was met with a request for "a more practical approach" and, when that was not forthcoming, with silence.

Meanwhile Ben-Gurion, as a result of a series of internal disputes, had been expelled from the MAPAI party, which he had led for so many years and had organized an opposition party known as RAFI. Hoping to get Ben-Gurion reelected, Bergmann made the fatal mistake of becoming actively involved in party politics during the election of 1966. Though Ben-Gurion succeeded in winning a seat in the Sixth Knesset, Eshkol and the MAPAI maintained their majority and the Prime Ministership. Bergmann was now officially branded as Ben-Gurion's man and as politically untrustworthy by the new administration. In addition, he had violated Israeli law as a paid government civil servant by becoming politically partisan. As a result, he was asked to resign his position in the Ministry of Defense and his Chairmanship of the Israel Atomic Energy Commission, which he did on 1 April 1966. In compensation, he was awarded the first Israel Security Prize that May in recognition of his many years of government service.

Though now lacking official government status, Bergmann's forced resignation did not end his influence on the development of Israeli science policy. Shortly after his forced departure from the Weizmann Institute in 1951, Bergmann, by a route that remains unclear, succeeded in being appointed as a professor of organic chemistry at the Hebrew University. Here he trained a generation of Israeli chemists, played a role in the founding of several scientific organizations and journals, and sponsored a series of international scientific research symposia. Indeed, this hardly exhausts the

list of his many activities, which continued unabated until his death on 06 April 1975 at age 71 from a combination of heart and lung failure due to cancer and emphysema brought on by a lifetime of chain smoking.

In the end, he more than lived up to the pledge he had made in his first letter to Weizmann so many years before when he wrote that "it would be a great happiness and a great distinction if I, in my profession, could prove useful to our country" – a thought that he would express in even more personal terms in a letter written in 1942:

It is not an exaggeration that the "three-fold" link of blood, heart and chemistry connecting me to Israel comforts me during the difficult days and nights ... How could it be otherwise?

Publication History

This paper is a brief resume of the book-length biography: W. B. Jensen, H. Fenichel, M. Orchin, *Scientist in the Service of Israel: The Life and Times of Ernst David Bergmann*, The Hebrew University Magnes Press: Jerusalem, 2011. Details concerning the sources of the various quotes and other references can be had by consulting the book. It was presented, by invitation, as part of the symposium "Leadership, Critical Decisions, and Missed Opportunities in Israeli Science Policy" held on 24 June 2014 as part of the annual conference of the Association of Israel Studies held at the Sedi-Boqer campus of the Ben Gurion University of the Negev.