

Scientist in the Service of Israel

The Life and Times of Ernst David Bergmann
(1903-1975)

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Preface

A distinctive development of the 20th century was the rise, especially in the decades following the Second World War, of the governmental science advisor. The importance of such men as the Harvard chemist, James Bryant Conant, who served as an advisor to Franklin Delano Roosevelt and Harry Truman, and the British physicist, Frederick Alexander Lindemann (Baron Cherwell), who performed a similar role for Winston Churchill, are well known, and it consequently comes as no surprise that both of these scientists have been the subject of detailed biographical studies. The same, however, is not true of Ernst David Bergmann, who served as science advisor to David Ben-Gurion for almost two decades. Though it might be argued that this discrepancy is not unexpected, given that Israel is hardly a world power comparable to either the United States or Great Britain, the fact remains that Bergmann's unrelenting campaign to develop a strong Israeli defense policy based on the acquisition of high-tech weapons, including the atomic bomb, continues to haunt the politics of the Mideast to this day.

While this association alone would justify a book-length biographical study of Bergmann, it must be further noted that he is also of great importance for the key role which he played in the establishment of virtually every aspect of the present-day Israeli scientific community, and likewise for his 18-year association with Chaim Weizmann and the latter's vision of establishing an economic foundation for Israel based on "green chemistry" – a vision which has great relevance for a world which is now facing the specter of global

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warming. Indeed, anyone attempting a biography of Bergmann soon realizes that this is impossible without a parallel study of Chaim Weizmann's career as a chemist and its impact on almost every facet of Bergmann's thinking – an aspect of Weizmann's life which has largely been de-emphasized by his previous biographers, most of whom have, for obvious reasons, focused instead on his Zionism and his role in the founding of Israel.

When it comes to well-known scientists, such as Benjamin Franklin, Charles Darwin, Albert Einstein, or Robert Oppenheimer, as many as a dozen or more previous biographies may already have been published. In these cases most of the primary research has long been done, and any author attempting a fresh biography is free to concentrate on issues of interpretation and emphasis, having been largely absolved by his predecessors of the necessity of digging through archives, discovering basic biographical facts, or conducting interviews with former friends and colleagues. Such is not the case with Bergmann. Since this is the first fully documented biography of this important, albeit previously neglected scientist, a great deal of time and effort has gone into locating relevant documents, facts, and anecdotes. The results of this search have varied significantly, depending on the particular period of Bergmann's life. In simplified terms, these are four in number: his childhood and education in Germany (1903-1933); his 18-year association with Chaim Weizmann and the founding of both the Sieff and Weizmann Institutes (1933-1951); his 18-year association with David Ben-Gurion, both as his personal science advisor and as Head of Scientific Research for the Israeli Ministry of Defense (1948-1966); and his Professorship of Organic Chemistry at the Hebrew University (1952-1975).

For the first of these periods we have had to rely heavily on genealogical information and anecdotes provided by the surviving members of Bergmann's family, various short entries in biographical dictionaries, and standard reference works documenting doctoral theses and other academic publications. The richest and most detailed documentation is for the second period, where we were able to draw not only on the published letters and autobiography of Weizmann, but

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also on Bergmann's personal correspondence with the Weizmanns, which has fortunately been carefully preserved in the archives of the Weizmann House in Rehovot. The most difficult period to document has been the third, which is arguably the period of most interest to political historians. Though an extensive Bergmann archive covering this period exists at the Weizmann Institute, for reasons of national security it is accessible only with government permission, which we were regrettably unable to obtain. Consequently, we have had to rely instead on secondary sources and, most notably, on Avner Cohen's superb 1998 study of the development of the Israeli atomic bomb. As for the fourth and final period, we were surprised to discover a paucity of documentation in the archives of the Hebrew University, though perhaps this is because the relevant materials were, at some point, consolidated with those in the archives of the Weizmann Institute. However, we were able to compensate for this through an extensive correspondence and series of interviews with various former colleagues and students of Bergmann, something which would no longer be possible had this biography been undertaken a decade from now.

Interviews and spur of the moment comments engendered by the rapidity of modern-day internet correspondence are often notoriously inaccurate when it comes to specific dates and names. Rather their value lies primarily in the personal anecdotes and emotional impressions which they convey. As such, they do not necessarily give us an objective view of Bergmann, but rather one that has been filtered through the lens of another personality. In keeping with this, the impressions culled from these sources have varied from the highly critical to those bordering on hero worship, and we have felt compelled to present both extremes in the belief that the truth lies somewhere between. Since many of the interviews were conducted in Hebrew and required translation, or involved conversations with persons for whom English was a second language, we have taken the liberty of editing those portions which we have quoted, while taking great care not to alter their intended meaning. The same has also been done with comments excerpted from our correspondence, since most

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of this was done via e-mail – a medium which does not encourage the same degree of attention to grammar and writing style as would a document intentionally composed for publication.

Given that many relevant documents are still inaccessible, we cannot claim to have written the definitive biography of Bergmann, though we are confident that we have provided a fairly complete overview of his life. For this reason, it is our hope that this biography will form the basis for yet future biographies of Bergmann and, with this in mind, we have, whenever possible, allowed our sources and documents to speak for themselves through direct quotation, rather than through indirect paraphrase. With the same goal in mind, we have also been meticulous (some might say overly so) in referencing the source of each fact or comment, however trivial.

It is also our hope that this biography will appeal not only to former students and colleagues of Bergmann, as well as to other members of the scientific community, but also to both the Jewish reading public in general and to certain segments of the non-Jewish reading community, whether in Israel, the United States, Europe, or the world at large. Trying to balance the needs and expectations of these different audiences has not always been an easy task. With respect to the first of these groups, we have used standard scientific nomenclature, as well as accepted scientific abbreviations and formatting in all of our references, as documented by the *Chemical Abstracts Service Source Index*. With respect to the second and third groups, we have relegated many of the details of Bergmann's purely chemical publications and research interests to a series of appendices which may be skipped over by the general reader. Lastly, with respect to the third group, we have included, where necessary, background information on the history of Zionism and Israel which may be deemed unnecessary by readers of the second group.

It has been our ultimate intent to provide, in the words of Jonathan Keates, a "straightforward birth-to-death narrative without much hypothesis or personal intervention." But, in so doing, we hope that we have also been sensitive to Edmund Clerihew's classic advice regarding the art of biography:

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In all works of a biographical character it is important to make copious reference to as many as possible of the generally recognized virtues, vices, good points, foibles, peculiarities, tricks, characteristics, little weaknesses, traits, imperfections, fads, idiosyncrasies, singularities, morbid symptoms, oddities, faults and regrettable propensities.

*University of Cincinnati
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Personal Foreword

Milton Orchin

I first met Ernst David Bergmann when I arrived in Palestine in September of 1947, accompanied by my wife, Ruth, and my two-year old son, Morton.¹ I had been granted a leave of absence from my position at the Bureau of Mines in Pittsburgh in order to accept a Guggenheim Fellowship that would allow me to work with Bergmann at the Daniel Sieff Institute in Rehovot, where he was the Scientific Director. We both shared an interest in the relationship between chemical aromaticity and carcinogenic properties, and our collaboration would ultimately result in the publication of two papers dealing with the synthesis of various aromatic compounds.^{2,3}

Bergmann, who was 44 years old at the time, proved to be friendly but formal. He was of medium height, wore relatively thick glasses, spoke English with a noticeable German accent (or so I'm told, since oddly enough I cannot recall one), and was never without a cigarette, always using the butt of one to light its successor – a somewhat dangerous habit for an organic chemist accustomed to working with highly inflammable solvents. I in fact saw very little of him during my stay in Rehovot. These were exciting times in Palestine and it was obvious that Bergmann was heavily involved in the events that were unfolding outside the walls of the Institute, though the details of this involvement were unknown to me at the time. He would appear only occasionally, consult with me about the progress of my work, suggest several pertinent literature references, and then disappear again. Indeed, my most lasting impression of him

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was his uncanny mastery of the chemical literature. Whatever the topic or problem, he would immediately come up with one or two references that usually proved accurate and of great value.

Our stay in Rehovot not only allowed my wife and me to witness first-hand the birth of Israel as a nation, it also provided me with an opportunity to meet, however briefly, two men, who not only played pivotal roles in the founding of Israel, but, as we will later see in this book, pivotal roles in the personal and professional life of Bergmann as well. Six weeks after our arrival in Palestine, on 29 November 1947, the General Assembly of the United Nations voted to partition what remained of the country under the British Mandate into separate Jewish and Arab States. Conditions in Palestine became quite chaotic thereafter. Territorial enclaves of British, Jewish, and Arab populations were tacitly defined and it was dangerous to travel outside one's own area. Despite this danger, the governing body of the Yishuv insisted on meeting in Jerusalem, which was geographically isolated from the center of the Jewish population. Consequently, one Sunday in January, a convoy of trucks and passenger vehicles began to assemble in Rehovot in preparation for the dangerous journey of several hours to Jerusalem through the hills of Judea, much of which were controlled by hostile Arab fighters. Bergmann had asked me to give a sample of a chemical preparation to a chemist who was somewhere in the convoy, and I was busy searching for him among the long lines of vehicles when I came across a Ford sedan with several bullet holes in its side. Looking closer at the single occupant in the rear seat, who was calmly reading a Hebrew newspaper and eating an apple, I was flabbergasted to recognize the famous flowing fringe of white hair and round face of none other than David Ben-Gurion! I couldn't resist the temptation and tapped at the window. Ben-Gurion looked up, rolled down the window, and, after exchanging shaloms, asked me what I, as an American, was doing in Rehovot. After giving him a short answer, he began questioning me about the custom of sabbaticals – were they, for example, taken during or after seven years of service? I was amazed that he appeared to be so calm and apparently indifferent to the impending hazards of the trip ahead.

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My second encounter occurred on our return to the United States in early March of 1948. I had been asked to personally meet with Chaim Weizmann, one of the towering figures of the Zionist movement, and a short visit with him in New York was arranged so that I could give him an update on the situation at the Sieff Institute, which he had been instrumental in establishing (and which was shortly to be renamed the Weizmann Institute in his honor). When he gently pressed my hand in greeting and focused his attention on me, I was overcome with emotion. I became aware that I was in the presence of a truly remarkable and charismatic person. It was an encounter that would make a lasting impression. I relayed to him the dreadful news that one of the chemists at the Institute had recently been murdered in an Arab attack on an intercity bus near Rehovot. After the meeting, I was chastised by his aides for springing such unsuspected bad news on the ailing leader without first clearing it with them.

More than a half century has passed since these events, and though I would visit Israel many times in the intervening years and occasionally have dinner with Bergmann during these visits, my time and energy were naturally focused on the affairs of my own family and career back in the United States. It is only now, at age 94, when I have finally closed my laboratory at the University of Cincinnati, written my last experimental paper, and begun sorting through my files, that my thoughts return once more to those events and encounters of so many years ago – not only the encounters with Bergmann, Ben-Gurion, and Weizmann, but also with the staff of the Sieff Institute – with Leon Haskelberg, who shared my laboratory; with Weizmann's younger sister, Anna; with Benjamin Bloch, the administrative head of the Institute; with Weizmann's life-long assistant, Harold Davies, whose extreme affectation of British mannerisms made him the object of suspicion by both Arab and Zionist alike; with Davies' future wife, Rita Cracauer, who had once been Fritz Haber's secretary; and with the various research personnel, including Herbert Bernstein, Emanuel Zimkin (Gil-Av), Emile Eschinzai, Bruno Rosenfeld, Ester Hellinger, Ernst Simon, and the young Viennese chemist, Benjamin Dishon, whose tragic death from

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an Arab terrorist bomb I had the sad duty of reporting to Weizmann on my return to the United States.

In my files I find a folder dealing with Bergmann which contains assorted clippings relating to his career and his death in 1975, and, in reading these over, it has occurred to me that this was a man who is surely deserving of a full biography. I am, of course, hardly alone in this assessment. Shimon Peres, the wise, experienced diplomat, principled politician, and accomplished administrator, included both Bergmann and Ben-Gurion (though, oddly enough, not Weizmann) in his 1979 book, *From These Men: Seven Founders of the State of Israel*.⁴ In his chapter on Bergmann, subtitled “Creating a Future Out of Naught,” Peres characterized Bergmann as a man who possessed “... abilities that bordered on genius – a phenomenal memory, a rare capacity for learning and teaching, an outstanding analytical talent, and a series of wide-ranging scientific achievements,” and in a memorial lecture given after Bergmann’s death, Ephraim Katzir, the fourth President of the State of Israel, and himself an internationally admired biochemist, characterized Bergmann as “Israel’s greatest scientist.”⁵ Indeed, as early as 1949, Weizmann, in his autobiography, *Trial and Error*, had described Bergmann as a “gifted scientist,” who, in his opinion, “was destined to play an important part ... in the scientific and technical development of Palestine,” and as “a Zionist” and “great intellect” who “lived and worked for Palestine and Palestine only.”⁶ Even a superficial scan of the various obituaries and entries in biographical dictionaries relating to Bergmann reveal a man who was not only a highly talented and prolific research chemist, but who was also a teacher and founder of the Israeli chemical community, a friend and advisor to such men as Weizmann and Ben-Gurion, an important figure in the early history of such controversial organizations as Haganah, HEMED, and EMET, and, most controversial of all, a man who is widely considered to be a founding father of the Israeli atomic energy program – in short, “a scientist in the service of Israel.”

In undertaking such a biography, I fully realize that I am at a distinct disadvantage with respect to time, geography, and language, as much of the pertinent archival material is either in Germany or

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Israel. In order to partially overcome these disadvantages, I have enlisted the assistance of two colleagues: Dr. William B. Jensen, who holds the Oesper Chair in the History of Chemistry at the University of Cincinnati, and who has contributed both his ability to read German and his expertise on the German chemical community in the late 19th and early 20th century; and Dr. Henry Fenichel, of the University of Cincinnati Physics Department, who has contributed both his ability to read Hebrew and his knowledge of nuclear physics. In addition, as indicated in the acknowledgments, we have also had the generous assistance of many former colleagues and students of Bergmann in Israel and also of the surviving members of the Bergmann family. There is, of course, the additional disadvantage that much of the archival material relating to Bergmann's involvement in Haganah, HEMED, EMET and the Israeli atomic energy program is unavailable to the public and, as a consequence, we have had to rely largely on secondary sources when dealing with these subjects, and, in particular, on the pioneering work of Seymour Hersh,⁷ Avner Cohen⁸ and, most recently, Michael Karpin,⁹ on the development of the Israeli atomic bomb.

Though, as a result of these restrictions, we can hardly claim to have written the definitive biography of Bergmann, we hope that we have at least produced an adequate first attempt, and have uncovered sufficient information to inspire a younger historian to undertake a more detailed study of both the man and his work than is attempted here. Indeed, for all the external facts we have documented concerning his career, we find that, in the end, Bergmann's inner life still remains a mystery to us. It is not unlike the observation of Mark Twain, recently quoted by the reviewer, John Simon, in the *New York Times*,¹⁰ concerning the problem of trying to write a life of Shakespeare – “it is like reconstructing a brontosaurus skeleton from nine bones and 600 barrels of plaster of Paris” – though perhaps a more apt metaphor was provided by William Deresiewicz, in a recent review of a biography of Bergmann's Hebrew namesake, King David:

*Try to grasp him and you embrace vapor.*¹¹