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Introduction

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The history of Israeli science and technology offers a unique case study of a young and small nation that has developed an unprecedented love affair with science and technology. Unlike other nineteenth-century ideologies, Zionism was never considered to be founded on science. Nevertheless, from the very start, the Zionist movement perceived the sciences, pure and applied, as central to its program of creating a new Jewish society in the Land of Israel (Funkenstein [1985] 2003). Modern science was to provide twice for the Jews: a relief from their suffocating religion and the tools needed to recover their ancient land from its ruins. Israel would remain the people of the book, but it would be the Book of Nature, not of God, that would set it free. Sharing the universal knowledge and values of science with mankind, the Jews would finally become both normal and self-determined. Thus, already in the nineteenth century, long before the State of Israel was founded, Zionist visionaries had dreamt of it as a modern version of Francis Bacon's utopian Kingdom of Bensalem, where science and technology would provide health, wealth, and power (Elboim-Dror 1993; Herzl 1902).

This did not remain a mere dream for long. By the 1920s, the Jewish population in Palestine, which sported by most generous estimates no more than 50,000 souls, had already boasted a high-minded research university in Jerusalem; an equally ambitious technical university in the northern city of Haifa; and a number of agricultural and medical stations throughout the land. By the early 1930s, a pure research institute was also added: the Sieff Institute, which focused on the natural sciences.[1] These institutions received financial support from abroad, mainly from American Jewry, and were able to recruit first-rate scientific personnel from the Jewish immigration arriving from Europe. The result was a vibrant scientific culture that prospered in unlikely conditions and played an important role in the life of the fledgling Jewish society in Palestine.

After the establishment of the State of Israel in 1948, science and technology quickly turned central to its ideology, economy, security, and culture. Bereft of natural resources, Israel focused early on developing a scientific and technological infrastructure of education, research, and application as a key to a sound economic future. Bereft of manpower and territorial depth, the pursuit of technological superiority became a

[1] Named at first after the son of its British benefactor, Lord Sieff, the institute was later renamed The Weizmann Institute, after Chaim Weizmann, a chemist and Zionist leader, who was the institute's first president and later, in 1948, Israel's first president.

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cornerstone of its military doctrine, policies, and accompanying discourse. Bereft of a secular tradition, leading elites in the young society turned to science as a touchstone to their cultural identity. The results were admired throughout the world – a young nation that quickly reached the forefront of western science and technology; the only one to do so among the many nations that gained their independence following the Second World War.

By the mid 1960s, the number of Israeli universities had tripled (from two to six), and a national network of research and technological institutes, and academic and industrial laboratories was set in place. By the 1970s, Israeli universities were producing the highest rate in the world of doctorates in the natural sciences (300 per million); its agriculture and water technologies were breaking new ground; and its experts' advice was sought throughout the developing world, where Israel served as a model for the many nations that wanted to learn how to harness the powers of science and technology. During the following decades Israel has lost some of its luster in the developing world but it continued to solidify its leading position in numerous scientific and technological fields: from genetics, medicine, and mathematics to hi-tech, biotech, and military technology.

Israel's intense romance with science and technology has manifested itself also in the liberal arts, in the shape of a lively community of historians, philosophers, and sociologists of science and technology. However, in its early stages, this community remained aloof to Israeli science and the role it played in its own society. The science the scholars were interested in was universal in nature, and its local Israeli forms were considered a parochial problem, one that could provide neither intellectual satisfaction nor international attention. Thus, Israeli historians of science have made remarkable contributions to a wide spectrum of scholarship from Greek mathematics, to medieval science, scientific revolution, *Naturphilosophie*, and quantum physics, but little to the history of their own science and society.

Exceptions are to be noted, however, most notably in the work of Shaul Katz who produced important scholarship on the history of Israeli science since the 1970s (Katz 1975, 1986, 1997a, 1997b, 2004). But his work received little attention at first from Israeli historians. The only other historian who produced significant scholarship on the role of scientific expertise in Palestine is Derek J. Penslar, a Canadian historian (Penslar 1991). The interest of Israeli scholars in the history of Israeli science began to grow in earnest only during the first decade of the twenty-first century. In 2000, the first Archive for the History of Israeli Science was established, with the help of Shaul Katz who also donated most of the archival materials.[2] In the same year, Noah Efron established in Bar Ilan University a new graduate program that emphasized the study of science and technology in their local Israeli contexts. Shortly after, in 2002,

[2] The Ashbel Archive was named after Professor Rivka Ashbel and was created as an extension of the Ben-Gurion Archives at Sde-Boker. To this date it remains the only archive that focuses on the history of Israeli science.

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Tal Golan, then at Ben-Gurion University, established a summer workshop designed to encourage research on the history of Israeli science and its role in the development of Israeli society.

These institutional developments promoted and catered to a growing interest among Israeli scholars and students in the history of Israeli science. This interest has been met with a growing body of research and publications. In 1997, Shaul Katz and Michael Heyd co-edited a two-volume history of the Hebrew University, which included pioneering work on the development of Israeli academic science (Heyd and Katz 1997). In the same year Shifra Shvarts published a book on the history of the medical services in mandatory Palestine and in 2000 added a second book on their developments during the early years of the State of Israel (Shvarts 1997, 2000). In 2001, Penslar's book on Zionism and technocracy was translated into Hebrew (Penslar 2001). In 2003, Nadav Davidovitch and Nurit Kirsh began to publish on the history of Israel health policy (Davidovitch 2003, 2004, 2005) and on the history of Israeli genetics and Israeli women of science (Kirsh 2003, 2004). In 2004, Tal Golan edited a special volume of the journal *Israel Studies* that included seven samples from the growing crop of research on Israeli science, technology, medicine, and public policy (Golan 2004). In 2006 Raphael Falk published a fascinating account of the Zionists' infatuations with racial biology and eugenics (Falk 2006), and in 2007 Noah Efron published a historical overview of the relations between Jews and science, which included an important chapter on Israeli science (Efron 2007). In addition, several Ph.D. dissertations were written at various graduate programs in universities around the country.

This list of titles is by no means exhaustive and should be treated only as a rough outline for this new and growing body of scholarship on the history of Israeli science. The present issue of *Science in Context* is intended as a fresh contribution to this body of scholarship. The volume puts forward a collection of five research articles and one historical text in translation. The articles touch upon a spectrum of scientific activities, both prior to and after the creation of the State of Israel, but they do not cover all relevant periods and disciplines, and do not come close to adequately representing the range of topics and methodologies currently pursued in the field. Rather the aim of this collection is to lend further visibility to the field in a way that, we expect, will be appealing to a large audience of historians and sociologists of science working in their own fields of interest. The collection should also interest scholars on the history of Zionism and of Israel, as it provides original vistas on fields that are less typically addressed in the general historiography and that touch on highly important questions.

In the first article of the collection, Rakefet Zalashik and Nadav Davidovitch tell the story of a rather unknown and short-lived center of scientific research that was established in 1916, the "Pasteur Institute for Health, Medicine, and Biology in Palestine." They locate their account at the crossroads between biological science, health policy, and the attempt to create a "new society," which was so central to the ideological discourse of the Zionist project. In addition, the authors provide a broader outlook on this story, by placing it within the more general context of the history

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of public health and colonial medicine, and by pointing at the parallels with other bacteriological institutes, or institutes of tropical medicine as they were also called, founded by colonial powers in other geographical areas at roughly the same time. The authors analyze the medical activities of the institute, its relationship with Zionist institutions, and the reasons for its limited success and eventual closure.

A different perspective on the early stages of scientific research associated with the Zionist project is discussed by Norbert Schappacher and Leo Corry in their article on Edmund Landau, the prominent German-Jewish mathematician who in 1927 became the first professor of mathematics at the newly created Hebrew University in Jerusalem, and then after less than two years in that position, returned to Göttingen. Landau was a key figure in the creation of a long-standing tradition of excellence in one of the most emblematic and enduring institutions of scientific research first promoted by the Zionist movement and further developed also after the creation of the State of Israel. The article presents a translation with a commentary of a speech delivered by Landau at the opening ceremony of the Hebrew University in 1925. In addition to presenting a genuinely interesting testimony of Landau's views on number theory (a field in which he was among the most distinguished researchers in the world), this document is also used by the authors as a convenient platform on which to ground the analysis of the biographical, ideological, institutional, and linguistic aspects of advanced mathematical research in Israel. Landau's Jerusalem lecture offers unexpected evidence of the significant connections between central aspects of the Zionist cause and some of the main political agendas that were taking place in Europe at that time.

Another field of scientific activity that was most successfully transplanted to Jewish Palestine from Europe was psychoanalysis. Historians of psychoanalysis have produced interesting scholarly research about the transmission of knowledge and localization of psychoanalytic research in many geographical and cultural contexts, each with its own peculiar circumstances. In this sense, Eran Rolnik's article on the formative years of Israeli psychoanalysis touches upon a kind of question that is well known to scholars in the field, but which in the case in point presents many intriguing features that make it a truly unique case, both from the point of view of the history of the discipline and from the point of view of history of the *Yishuv*, the Jewish community in Palestine. These features concern, among other things, the perceived (and disputed) special relevance of Freudian theory to the Jewish question, the remarkable incorporation of psychoanalytic ideas into the ideological repertoire of Zionist discourse, particularly the ideology of the leaders of the Zionist Youth movement in their search for a "New Man" and the central role accorded to Freudian theory in the educational ideology of the Kibbutz movement. Rolnik discusses all these topics in their historical context, and he also analyzes the immigration of an important contingent of German-speaking psychoanalysts following the rise into power of the Nazis, and the establishment, under the leadership of Max Eitingon of local psychoanalytical institutions in Mandate Palestine.

The fourth article, by Arie Krampf, focuses on the role of economists in the Israeli processes of state-creation and nation building, a role that had contemporary parallels

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in many other countries after World War II, but which also displays specific Israeli peculiarities. At stake is the role played by the recently created economics department at the Hebrew University under the strong leadership of Don Patinkin. While the common view of the early 1950s held that the state should allocate resources in order to expand production and employment, by the end of the decade the opinion of economic experts and policy makers was that the state should rely more heavily on the market for allocation of resources, and create more favorable conditions for employers. This was a radical change with far-reaching consequences for the future development of Israeli economy and society, and Krampf argues that Patinkin and his students had a tremendous influence in producing the changes in the terms of economic discourse in the country that underlie the change in conceptions. He also analyzes the complex mechanisms of interaction between academic policy discourse and the policy of the government.

The last article in the collection takes us forward in time, to the year 2000, and analyzes a completely different aspect of scientific activity, namely, the interaction of science and law in the Israeli context. Again, this is a topic that in its different manifestation in historical and national contexts has attracted the attention of scholars for quite a while. Tal Golan focuses in his article on what came to be known as "the Kishon Affair," which arose when veterans of an elite Navy unit claimed that a polluted river (the Kishon) they had been diving in during their military service had been the cause of an unusually high incidence of cancers among them. A high-rank commission comprising one of Israel's top jurists and two prominent scientists was established to adjudicate the dispute. But after three years of inquiry they failed to reach an agreement regarding the causal relation between the polluted river and the soldiers' cancer: the jurist found a causal connection while the scientists rejected it. Golan analyzes in the article the interaction between members of two establishments endowed with national authority to search for "the truth," and why they failed to agree on it. The peculiar characteristics of the Israeli interaction between science and law are set and analyzed against the background of two additional dominant Israeli discourses: the military and the environmental.

We have added to this collection a historical text in translation with an introduction by Guy Finkelstein and Alexander Métraux. This text was published in Yiddish by the historian Emanuel Ringelblum in Warsaw. It consisted of a set of guidelines for writing the history of Jewish medicine, and it was destined for the participants of the First World Congress of Jewish Physicians which opened in April 1936 at Tel Aviv at a time when plans were discussed for the establishment of a Faculty of Medicine at the Hebrew University in Jerusalem. The conjunction of both the article by Ringelblum and the congress of physicians sheds new light on an unknown aspect of the history of medicine in Mandatory Palestine.

The readers will notice that almost all authors are Israeli, whether or not currently associated with an Israeli university. This is no big surprise, of course, but it is also a sure sign that this field of scholarship is still in its earliest stages, where it attracts the

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attention (and this also only to a limited degree) mainly among the local community of historians. It is our hope that the present collection will open a window to additional scholars, both in Israel and in other countries, who will undertake further research and bring to the field fresh perspective and new relevant questions.

References

Davidovitch, Nadav and Shifra Shvarts. 2003. "Immigration, Health and the Israeli Melting Pot." *Iyunim* 13:181–20 (Hebrew).

Davidovitch, Nadav and Shifra Shvarts. 2005. "Health and Zionist Ideology: Medical Selection of Jewish European Immigrants to Palestine." In *Facing Illness in Troubled Times. Health in Europe in the Interwar Years, 1918–1939*, edited by Iris Borowy and Wolf D. Gruner, 409–424. Frankfurt am Main: Peter Lang Verlag.

Davidovitch, Nadav and Rona Seidelman. 2004. "Herzl's *Altneuland*: Zionist Utopia, Medical Science and Public Health." *Korot: The Israel Journal of the History of Medicine and Science* 17:1–20.

Efron, Noah. 2007. *Judaism & Science: An Historical Introduction*. Westport CT and London: Greenwood Press.

Elboim-Dror, Rachel. 1993. *Yesterday's Tomorrow: The Zionist Utopia*. 2 vols. Jerusalem: Yad Ben-Zvi 1:160–166 (Hebrew).

Falk, Raphael. 2006. *Zionism and the Biology of the Jews*. Tel Aviv: Resling (Hebrew).

Funkenstein, Amos. [1985] 2003. "Zionism and Science: Three Aspects." In *Spirit of the Time: A Collection of Lectures in Memory of Dr. Haim Weizmann*, edited by Anita Shapira, 7–18. Rehovot: Yad Weizmann.

Funkenstein, Amos. 1993. "Zionism, Science, and History." In *Perceptions of Jewish History*, edited by Amos Funkenstein, 338–350. Berkeley: University of California Press.

Golan Tal, ed. 2004. "Science, Technology and Israeli Society." *Israel Studies* 9(2).

Herzl, Theodor. 1902. *Altneuland*. Leipzig.

Katz, Shaul. 1986. "Sociological Aspects of the Growth of Knowledge and Its Circulation in Agriculture in Israel: The Rise of Extra-Scientific Systems for the Production of Agricultural Knowledge 1880–1940." Ph.D. diss., Hebrew University in Jerusalem (Hebrew).

Katz, Shaul. 1997a. "Pure Science' in a National University: The Einstein Institute of Mathematics and Other Research Institutes at the Hebrew University during its Formative Years." In *The History of the Hebrew University of Jerusalem: Origins and Beginnings*, edited by Shaul Katz and Michael Heyd, 397–456. Jerusalem: Magnes (Hebrew).

Katz, Shaul. 1997b. "On the Technological History of Palestine in the Late Ottoman Period: Three Case Studies." In *The Second Aliya: Studies*, edited by Israel Bartal, 189–212. Jerusalem: Yad Ben-Zvi (Hebrew).

Katz, Shaul. 2004. "Berlin Roots – Zionist Incarnation: The Ethos of Pure Mathematics and the Beginnings of the Einstein Institute of Mathematics at the Hebrew University of Jerusalem." *Science in Context* 17:199–234.

Katz, Shaul and Joseph Ben-David. 1975. "Scientific Research and Agricultural Innovation in Israel." *Minerva* 13(2):152–182.

Katz Shaul and Michael Heyd, eds. 1997. *The History of the Hebrew University of Jerusalem: Origins and Beginnings*. Jerusalem: Magnes (Hebrew).

Kirsh, Nurit. 2003. "Population Genetics in Israel in the 1950s: The Unconscious Internalization of Ideology." *Isis* 94:631–655.

Kirsh, Nurit. 2003–2004. "Physicians in the Young State of Israel: Putting Jewish Migration into Its Historic Perspective." *Korot* 17:71–96 (Hebrew).

https://doi.org/10.1017/S0269889710000153 Published online by Cambridge University Press

Kirsh, Nurit. 2004. "Geneticist Elisabeth Goldschmidt: A Twofold Pioneering Story." *Israel Studies* 9(2):71–105.

Penslar, Derek J. 1991. *Zionism and Technocracy: The Engineering of Jewish Settlement in Palestine, 1870–1918*. Bloomington and Indianapolis; Indiana University Press. (Hebrew version, 2001).

Shvarts, Shifra. 1997. *Kupat Holim Ha-Clalit 1911–1937*. Beer-Sheva: Ben Gurion University Press (Hebrew).

Shvarts, Shifra. 2000. *Kupat Holim, Histadrut, Memshala 1947–1960*. Beer-Sheva: Ben Gurion University Press (Hebrew).

https://doi.org/10.1017/S0269889710000153 Published online by Cambridge University Press