Bacterial spore formation has a major impact on medicine and agriculture, and its analysis has uncovered new paradigms for understanding bacterial physiology, cell biology, and gene regulation. The existence of bacterial endospores was recognized in the 1800s by both Maximilian Perty and Louis Pasteur, and spore formation and germination in *Bacillus* were reported by Ferdinand Cohn and by Robert Koch. One of the first papers published in the *Journal of Bacteriology* (JB) investigated the presence of spore-forming *Bacillus* species in soil by simple culturing and heat resistance testing (1). An additional early study of sporulation published in JB focused on the nutritional conditions that foster spore formation and germination and analyzed spore resistance properties, including the importance of heat resistance in food spoilage (2).

Subsequent studies over many decades investigated spore structure and function and the genetic basis for spore formation. For example, Santo and Doi (3) provided beautiful thin-section electron microscopy images that revealed the details of spore internal structure and the changes that occur during germination and outgrowth, as the spore returns to vegetative growth. These studies revealed a clear sequence of morphological events that occur during germination and outgrowth.

During the same period, a number of labs used genetic approaches to characterize the sporulation process by identifying mutants in which spore formation was blocked. A key study published in JB by Piggot provided a comprehensive analysis of asporogenous mutants (4). This study combined analysis of previously known mutants with isolation of a large set of new mutations, and careful morphological and genetic analyses provided a first clear notion that the number of genetic loci involved in the process was at least 28 (many of which were predicted and later shown to contain multiple genes). This work served as the foundation for decades of analysis of these genetic loci and the regulatory mechanisms responsible for integrating their expression into a carefully controlled program in both the developing spore and the surrounding mother cell that culminates in the formation of a mature spore.

REFERENCES