On July 27, 1656, the following text was read in Hebrew in front of the ark of the Portuguese-Jewish synagogue on the Houtgracht in the Vlooienburg quarter of Amsterdam where the Sephardic Jews (as well as their poorer Ashkenazic neighbors) tended to reside:

The Lords of the Ma'amad, having long known of the evil opinions and acts of Baruch de Spinoza, they have endeavored by various means and promises, to turn him from his evil ways. But having failed to make him mend his wicked ways, and, on the contrary, daily receiving more and more serious information about the abominable heresies which he practiced and taught and about his monstrous deeds, and having for this numerous trustworthy witnesses who have deposed and born witness to this effect in the presence of the said Espinoza, they became convinced of the truth of this matter; and after all of this has been investigated in the presence of the honorable chachamim they have decided, with their consent, that the said Espinoza should be excommunicated and expelled from the people of Israel. By decree of the angels and by the command of the holy men, we excommunicate, expel, curse, and damn Baruch de Espinoza, with the consent of God, Blessed be He, and with the consent of the entire holy congregation, and in front of these holy scrolls which are written therein; cursing him with the excommunication with which Joshua banned Jericho and with the curse which Elisha cursed the boys and with all the castigations that are written in the Book of the Law. Cursed be he by day and cursed be he by night; cursed be he when he lies down and cursed be he when he rises up. Cursed be he when he goes out and cursed be he when he comes in. The Lord will not spare him, but then the anger of the Lord and his jealousy shall smoke against that man, and all the curses that are written in this book shall lie upon him, and the Lord shall blot out his name from under heaven. And the Lord shall separate him unto evil out of all the tribes of Israel, according to all the curses of the covenant that are written in this book of the law.

But you that cleave unto the Lord your God are alive every one of you this day.

The document concludes with the warning that

no one should communicate with him, neither in writing, nor accord him any favor nor stay with him under the same roof nor come within four cubits in his vicinity; nor shall he read any treatise composed or written by him.

A Portuguese version was later entered into the community's record books.¹

Through this proclamation, a cherem—a ban or excommunication—was pronounced on the 23-year-old Baruch de Spinoza by the parnassim sitting on the community's lay governing board in 1656. It was the harshest writ of excommunication ever issued by the community; it was never rescinded. We do not know for sure what his “monstrous deeds” and “abominable heresies” were alleged to have been, but an educated guess comes quite easily. No doubt he was giving utterance to just those ideas that would soon appear in his philosophical treatises. In his philosophical masterpiece, the Ethics, and in the scandalous Theological-Political Treatise, Spinoza denied the immortality of the soul; rejected the notion of a providential God—the God of Abraham, Isaac, and Jacob; and claimed that the Law was neither literally given by God nor any longer binding on Jews. Can there be any mystery as to why one of history’s boldest and most radical thinkers was sanctioned by an orthodox Jewish community?

To all appearances, Spinoza was content finally to have an excuse for...
departing from the community and leaving Judaism behind; his faith and religious commitment were, by this point, gone. Within a few years, he left Amsterdam altogether, although there is little evidence to support the claim often found in biographical sketches that he was forced into exile, either by the rabbis or the city magistrates. By the time his extant correspondence begins, in 1661, he is living in Rijnsburg, not far from Leiden, the Netherlands, and he is engaged in the grinding of lenses.

In the back of the house in which Spinoza lodged in Rijnsburg, owned by a chemist-surgeon named Herman Homan, was a room in which Spinoza set up his lens-grinding equipment. (A visitor to Rijnsburg today will find in the Spinozahuis a recreation of the room and its equipment.) It was a craft he must have begun working on while still in Amsterdam, for by the time he settled in Rijnsburg he was fairly skilled at it and ready to get to work. As early as the fall of 1661, he was known for making not just lenses, but also telescopes and microscopes.2

Spinoza may initially have taken up the production of lenses and instruments to support himself. When he was forced to break completely all relations with the Jewish community, and therefore could not carry on with the family’s importing business, he had to seek his living by other means. But the firm Bento y Gabriel Despinoza was not bringing in very much income from 1655 onward anyway, certainly not enough to cover the debts he inherited from his late father, and Spinoza could not have felt his forced exit from the business to be much of a pressing loss. Moreover, from the opening paragraphs of his early Treatise on the Emendation of the Intellect, it is clear that Spinoza had independent, philosophical reasons for leaving the world of business, to turn from the pursuit of money and other mutable goods to the search for the “true good”: “I found that, if I devoted myself to this new plan of life, and gave up the old . . . I would be giving up certain evils for a certain good.”3(p8,9) He made an effort all his life to keep his material needs to a minimum, and his friends provided a good deal of financial help.

The work on lenses, then, more likely arose not primarily out of pecuniary need but from scientific pursuit. Spinoza, with his general enthusiasm for the new mechanistic science and mathematical physics, was interested in the latest detailed explanations of the microphenomena of biology and chemistry and the ever-improving observations of the macrophenomena of astronomy, as well as in the principles of optics that allowed for such discoveries. He wrote to his friend Henry Oldenburg in 1665 with evident delight about some new instruments he had heard about from the Dutch scientist and mathematician Christian Huygens:

He has told me wonderful things about these microscopes, and also about certain telescopes, made in Italy, with which they could observe eclipses of Jupiter caused by the interposition of its satellites, and also a certain shadow on Saturn, which looked as if it were caused by a ring.4(p194)

Spinoza himself did little significant original work in the physical or mathematical sciences. He had a solid grasp of optical theory and of the then-current physics of light, and was competent enough to engage in sophisticated discussion with correspondents over fine points in the mathematics of refraction. Writing in 1666 to the mathematician Johannes Hudde, who had an interest in the cutting and polishing of lenses, Spinoza offered a geometrical argument for why he believed that, when it came down to focal length and the diameter of the optic tube, convex/plane lenses were preferable to convex/concave lenses.5(p200) Moreover, he insisted, not only do convex/plane lenses require less “labor and expense” to produce, but the rays passing through convex/concave lenses, because they are not all directed to one and the same point, never fall perpendicularly on the concave surface.

Nonetheless, despite his early biographer Jean-Maximilian Lucas’ claim that “if death had not prevented it, there is reason to believe that he would have discovered the most beautiful secrets of optics,”6(p170) Spinoza was not particularly noted among his contemporaries for his theoretical contributions to the science. He did, however, have a well-recognized talent for practical optics, as well as a passion for microscopic and telescopic observation. Over time, he earned praise for his expertise in lens and instrument construction from some notable experts. Huygens, writing to his brother from Paris in 1667 (when Spinoza was living in Voorburg, near The Hague), noted that “the [lenses] that the Jew of Voorburg has in his microscopes have an admirable polish.”7(p155) A month later, still using the somewhat contemptuous epithet—occasionally replaced in his letters by “our Israelite”—he wrote that “the Jew of Voorburg finishes [achevoit] his little lenses by means of the instrument and this renders them very excellent.”7(p170) By the early 1670s, Spinoza’s reputation is sufficiently widespread that the German philosopher Leibniz called him “an outstanding optician, a maker of rather famous peep tubes,” and told him directly that among your other achievements which fame has spread abroad I understand is your remarkable skill in optics . . . I shall not easily find someone who can judge better in this field of studies.8(p170)

Even Theodore Kerckrincx, an old colleague from Franciscus Van den Enden’s school, where he learned Latin, and now an established and skilled physician, lauded Spinoza’s handiwork:

I own a first-class microscope made by that Benedictus Spinoza, that noble mathematician and philosopher, which enables me to see the lymphatic vascular bundles . . . . Well, this that I have clearly discovered by means of my marvelous instrument, is itself still more marvelous.7

Spinoza seems to have taken a hands-on approach to the grinding of glass. Commenting on Huygens’ own, newly invented technique, he remarks that

he has devised a machine in which he can turn plates, and a very neat affair it is. I do not yet know what success he has had with it, and, to tell the truth, I do not particularly want to know. For experience has taught me that in polishing spherical plates a flec hand yields
safer and better results than any machine. Huygens’s “machine” allowed the polisher to place the glass in a device that would then be brought to the grinding lathe; Spinoza preferred to hold the glass with his hands against the lathe, a large wooden structure that was powered by a foot pedal.

Grinding and polishing lenses in Spinoza’s day was a quiet, intense, and solitary occupation, demanding discipline and patience—in a word, an occupation perfectly suited to Spinoza’s temperament. Unfortunately, it was not as well suited to his physical constitution. The glass dust produced by the process probably exacerbated the respiratory problems he had suffered since childhood and contributed to his early death, in 1677, at age 44 years.

Accepted for publication February 11, 2000.

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A look at the past . . .

Atrophy gyrata choriodeæ et retinae is differentiated from retinitis pigmentosa by the prominence of the choroidal atrophy, which dominates the ophthalmoscopic picture. The appearance of the atrophy in the shape of round spots, constantly increasing in size, suggests that it starts in the middle of an area supplied by a single vessel, and advances toward the periphery. It is known that the smallest arteries of the choroid which pass from the middle vessels to the capillary layer divide here into numerous radiating capillaries. It is possible that these groups of capillaries may have a part to play in this disease. In any case, this disease seems to demonstrate that chronic degeneration of the retina in general, the different forms of which I have just dealt with, is preceded by a primary disease of the choroid.