The relationship between science and commerce as it plays out in plant breeding is a twenty-first-century concern; for example, genetic modification is debated on the grounds of food provision, health and environmental concerns, and corporate involvement in research. These debates are usefully informed by nineteenth-century precedents in breeding and how breeding was explained to consumers. The case study of seeds raises the issue of the extent to which cycles of consumption are led by some characteristic of the commodity itself, in this case the fact that the commodity has its own life cycle. Although breeders had specific, often beneficial, aims that guided their botanical research, the huge surge into crossing and breeding of seeds for the sake of ‘novelty’ sometimes produced plants that were not themselves productive of another generation. This intervention in natural cycles, rather than reliance upon them, can be seen as an early form of planned obsolescence, where the commodities themselves encouraged an annual purchase. The marketing practices that supported these purchasing cycles – such as the offer of premiums or the use of consumer testimonials – now appear to be taken for granted by both purveyors and consumers, but were developed over the course of the nineteenth-century as commerce moved away from relying on face-to-face exchange. Commercial uses of new media may update or extend business conventions that have existed for over a century.

BACKGROUND TO THE STUDY

Seed Money: the economies of horticulture in nineteenth-century America from January 2005 to March 2007 shows one path in the establishment of large-scale trade of natural commodities.

The nineteenth-century American garden was a place of commerce and culture. The market for horticultural goods, most notably seeds, was diverse in geographic and socioeconomic terms, as consumers planted for sustenance, economic livelihood, ornament, and leisure. The increasingly commercial exchange of seeds during the nineteenth century sat at the threshold between agrarian and industrial ways of life. As one of the earliest markets to reach a national scale, consumers used seeds to improve not only the individual plots of land they tended, but also the larger national landscape. Through their purchases consumers bolstered both their individual domestic economies and the broader political economy of the United States.
The relations of the Planter to his trusted Seedsman are more intimate than those of the buyer and seller in any other line of business; with other goods the buyer can largely judge of the quality and value by the sample, while with seeds the purchase is altogether a matter of confidence.' – W. Atlee Burpee Company, 1892

Consumer commentary
Gardens of all kinds took these brightly coloured, highly illustrated, and informative texts into their homes and shared them with friends and neighbours. Consumers also responded to commercial ephemera through testimonial letters. Writing these letters was a way of sharing horticultural success, such as neighbourhoud acclaim for an abundant garden; prizes for horticultural specimen deemed the best at county or state fairs; or financial gain from prolific crops with good market value.

Testimonial letters were effective as marketing tools because no particular status was needed to claim success. The words of a well-established market gardener who relied on seeds for income were no more authoritative than the story of a self-described amateur gardener whose flowers were the envy of her neighbourhoud. Having some sort of professional expertise might lend credence to a testimonial, but not having this experience could equally well convince buyers that such results were attainable by anyone. The forms of exchange between company and consumer—catalogues, letters, orders, all requested and sent on an annual basis—had the effect of encouraging brand loyalty.

The Asters were very fine, some seventy plants being in full bloom at the time of the Quantrell Raid, and made, together with Snap Dragons, Dianthus, Heddewigs, Phloxes, Petunias and other fine varieties, a very gay and beautiful appearance… Quantrell, with a dozen of his gang, came to destroy the place, but Quantrell said to my wife it was too pretty to burn, and should be saved… We shall cultivate flowers as long as we remember this horrible rebellion.” – George Ford, Lawrence, Kansas, 1864

MESSAGES FOR POLICY AND PRACTICE
The historical study of horticultural commerce has several implications for the present day. In an era of increasing concern for the preservation of environmental resources, this research shines a spotlight on the ethics of considering natural specimen as commodities. Although seeds have a long history as objects of informal trade, the standardisation and industrial scale of horticultural commerce over the course of the nineteenth-century...
late-nineteenth century often included on-site printing works to produce their marketing materials. The seed catalogue emerged as a genre combining commerce, instruction, entertainment, and artistic merit. Each plant species, variety, and strain was an opportunity for illustration, and the possible combinations of these specimens were, literally, countless. More uniquely, in the seed industry, illustrations in advertisement, catalogues, or on packages did not represent the actual object sold. Seeds themselves were not depicted, but rather the promise of what those seeds might produce.

All of the floral chromos [chromolithographs] we issue are painted by one of the best artists in this particular line in the country, and from flowers grown in our own gardens. His duties are confined to sketching and copying flowers or vegetables from nature, designing and painting the original for the chromo, and designing the ornamental labels and show cards, millions of which we print annually, and in furnishing the designs for the engravings that adorn the various publications of the house of Briggs and Brother .

– Briggs and Brother , 1875

Consumer commentary
Gardeners of all kinds took these brightly coloured, highly illustrated, and informative texts into their homes and shared them with friends and neighbours. Consumers also responded to commercial ephemera through testimonial letters. Writing these letters was a way of sharing horticultural success, such as neighbourhood acclaim for an abundant garden; prizes for horticultural specimen deemed the best at county or state fairs; or financial gain from prolific crops with good market value. Testimonial letters were effective as marketing tools because no particular status was needed to claim success. The words of a well-established market gardener who relied on seeds for income were no more authoritative than the story of a self-described amateur gardener whose flowers were the envy of her neighbour-
hood. Having some sort of professional expertise might lend credence to a testimonial, but not having this experience could equally well convince buyers that such results were attainable by anyone. The forms of exchange between company and consumer — catalogues, letters, orders, all requested and sent on an annual basis — had the effect of encouraging brand loyalty.

The promise of seeds
Print and visual culture became an important site for commercial exchange in the horticultural trades. While it could be argued that all businesses benefited from developments in print technology over the course of the nineteenth century, a special relationship between, or even overlap of, seed sellers and the printing trade did exist. Several early American seed sellers were also trained as printers and published their own catalogues, while the larger seed companies that flourished in the late-nineteenth century often included on-site printing works to produce their marketing materials. The seed catalogue emerged as a genre combining commerce, instruction, entertainment, and artistic merit. Each plant species, variety, and strain was an opportunity for illustration, and the possible combinations of these specimens were, literally, countless. More uniquely, in the seed industry, illustrations in advertisement, catalogues, or on packages did not represent the actual object sold. Seeds themselves were not depicted, but rather the promise of what those seeds might produce.

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Findings: Seed Money: the economies of horticulture in nineteenth-century America
as part of the ESRC/LIC Cultures of Consumption research programme (KS1-154-25-00001), Marina Moskowitz (University of Glasgow) was the principal investigator and researcher on the project. Archival research was carried out primarily in the United States, at the Library of Congress; National Agricultural Library; Smithsonian Institution, as well as local, university, and museum archives in Rochester, New York; Philadelphia, Pennsylvania; and Boston, Massachusetts.

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The nineteenth-century American garden was a place of commerce and culture. The market for horticultural goods, most notably seeds, was diverse in geographic and socioeconomic terms, as consumers planted for sustenance, economic livelihood, ornament, and leisure. The increasingly commercial exchange of seeds during the nineteenth century sat at the threshold between agrarian and industrial ways of life. As one of the earliest markets to reach a national scale, consumers used seeds to improve not only the individual plots of land they tended, but also the larger national landscape. Through their purchases consumers bolstered both their individual domestic economies and the broader political economy of the United States.

KEY FINDINGS
● The seed trade was one of the first American businesses to reach a national consumer market.
● Seeds were one of the first commodities exchanged on a large scale by mail-order sales; this type of commercial exchange co-existed with retail shop sales and door-to-door peddling.
● The marketplace for seeds was constructed largely in print. Advertising and catalogues were the sites of both commercial exchange and the transfer of horticultural knowledge. Horticultural information was conveyed through copious and colourful images, as well as text.
● Where goods, such as seeds, cannot be easily evaluated, the issue of consumer trust, and the building of brand loyalty, is paramount. Consumers offered their opinions on both seeds and the firms that sold them through testimonial letters, often printed by the trade.
● In the seed trade, the categories of consumer and producer were fluid, as all participants in the market carried out the same horticultural practices of sowing seeds and tending plants. This fluidity was also seen in the commodity chain for seeds, in which firms acted as both consumer and purveyor of seeds at different points in the market cycle.

HIGHLIGHTS
The nature of the seed trade
For the seed industry to be successful, it needed to convince its consumers not to harvest seeds from their own gardens, but rather to buy seeds from the companies each year. Because most purchases of seeds were relatively modest, and occurred only annually, firms did whatever they could to attract new customers and encourage consumer loyalty. Plants themselves – the careful building of seed stocks and the development of ‘novelties’ through selection and breeding – were the cornerstones of all marketing efforts. By planting seeds, consumers established and maintained a presence on the landscape.

However, while the commodities encapsulated the potential for settlement and economic benefit, the trade that grew up around them was increasingly...