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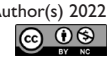

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Environmental Malthusianism and demography

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Abstract

As anthropogenic climate change threatens human existence on Earth, historians have begun to explore the scientific antecedents of environmental Malthusianism, the idea that human population growth is a major driver of ecosystem degradation and that environmental protection requires a reduction in human numbers. These accounts, however, neglect the antagonistic relationship between environmental Malthusianism and demography, thereby creating an illusion of scientific consensus. This article details the entwined histories of environmental Malthusianism and demography, revealing points of disagreement – initially over methods of analyzing and predicting population growth and later over the role of population growth in ecosystem degradation – and moments of strategic collaboration that benefited both groups of scientists. It contends that the image of scientific consensus in existing histories has lent support to ongoing calls for population control, detracting attention from more proximate causes of environmental devastation, such as polluting modes of production, extractive business practices and government subsidies for fossil fuel development.

Keywords

population, demography, environmentalism, Malthusianism, social science

At the beginning of the 21st century, as anthropogenic climate change threatens human existence on Earth, many people in the US – at least many of those who acknowledge the reality of the crisis – accept as common sense that population growth drives this calamity and that reducing the number of people on Earth would avert or mitigate harm (Funk et al., 2015). Some bioethicists argue that, because 'we are threatened with more population than the planet can bear', humans simply 'don't have a right to more than

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one biological child' (Conly, 2016: 2). Some recommend that governments act to uphold this limit (Hickey et al., 2016). Even feminist historians and sociologists of science, including some sharp critics of the population control projects of the late 20th century, now call for measures to reduce childbearing as a means of combatting climate change (Clarke and Haraway, 2018). Environmental Malthusianism, the idea that human population growth is the primary driver of environmental harms and population control a prerequisite to environmental protection, is experiencing a resurgence (Dean, 2015; Gleditsch, 2021; Kallis, 2019; Robertson, 2012).

Over the past 20 years, historians have uncovered the intellectual, social and political roots of environmental Malthusianism, tracing it to the first decades of the 20th century (Bashford, 2014; Desrochers and Hoffbauer, 2009; Robertson, 2012; Ross, 1998). While these accounts document the relationship between environmental Malthusianism and the broader 20th-century population movement, they generally overlook the tensions between environmental Malthusianism, promulgated primarily by natural scientists, and demography, the quantitative social science of human population dynamics. By including only the very few demographers who aligned themselves with environmental Malthusianism (most prominently Kingsley Davis), these histories create the false impression of scientific consensus regarding the relationship between human population and the natural environment. Historical critiques of population control further promote this illusion by conflating environmental Malthusianism and demography into an undifferentiated population science (Connelly, 2008; Hartmann, 1995).

Histories of demography, for the most part, largely ignore the natural environment and environmental Malthusianism (Greenhalgh, 1996; McCann, 2017; Merchant, 2017; Murphy, 2017). This omission makes sense, as demographers – social scientists who worked in and/or received their graduate training in university-based population research centres – had little to say about the natural environment before the mid-1990s (Pebley, 1998). Even as late as 2018, Amy Tsui, the outgoing president of the Population Association of America (PAA, demography's primary professional organization), acknowledged that 'the one area we [PAA] somehow never captured, and maybe we need a celebrity for this, so to speak, an advocate, is environment' (Weeks et al., 2018: 11). Despite demographers' overwhelming silence about the natural environment, however, environmental Malthusianism was integral to the history of their field. Environmental Malthusianism generated public concern about overpopulation, which translated into massive funding for research and training in demography after World War II. It is likely because environmental Malthusianism was such a boon to demography that demographers largely kept their scientific critique of environmental Malthusianism to themselves.

This article traces the relationship between environmental Malthusianism and demography from the interwar period to the early 21st century, drawing on the archives of environmental Malthusians, demographers, their employers and their funders, and on oral history interviews completed over the past 40 years. In so doing, it reveals more distance and opposition between demographers and environmental Malthusians than historians and other scholars of population and the environment have previously recognized. It contends that, since the 1920s, demography has taken a non-Malthusian approach to human population dynamics that continually challenges facile equations between human population growth and environmental degradation. Further, it

demonstrates that environmental Malthusianism, though often promoted by scientists, has been motivated more by opposition to environmental and economic regulation than by scientific analysis. This article focuses on US-based actors, because environmental Malthusianism originated in the United States and because, during the period of analysis, most demographers publishing in English were trained in the United States.[1]

The purpose of this article is not to valorize demography or to suggest that demographers got it 'right' and environmental Malthusians got it 'wrong'. Both groups of scientists promoted overpopulation narratives that attributed some of the world's most pressing problems to its most vulnerable citizens and justified repressive family planning and population control programs (Connelly, 2008; Hartmann, 1995; Merchant, 2021). For demographers, however, overpopulation was an economic phenomenon, not an environmental one. Critiques of demography's economic version of overpopulation abound (McCann, 2017; Merchant, 2017; Murphy, 2017). This article focuses its critique on environmental Malthusianism, demonstrating that there has never been a scientific consensus about the relationship between human population and the natural environment.

The interwar birth of population science

Histories of environmental Malthusianism typically begin between the world wars, with two biologists: Johns Hopkins University's Raymond Pearl and Harvard University's Edward East (e.g. Robertson, 2012). Pearl and his colleague Lowell Reed (1920) formalized Malthus's theory that subsistence resources drive and constrain human population growth, while East (1923) linked population growth to soil erosion and other signs of environmental degradation. Both men used their scientific credentials to call public attention to the threat of impending overpopulation in the United States. What existing histories often fail to acknowledge is that biologists were not the only scientists dealing with human population between the wars.[2] Also in the 1920s, Metropolitan Life Insurance statisticians Alfred J Lotka and Louis I Dublin developed a non-Malthusian approach to population growth that would form the mathematical foundation for demography. On the basis of their analysis, Lotka and Dublin challenged Pearl and East's claims that the population of the United States was growing too quickly (Dublin, 1925; Dublin and Lotka, 1925).

Demography was thus born from controversy at a time when the science of human population was up for grabs (Ramsden, 2002). Scholars of science and technology studies look to controversies as moments when the co-production of science and the social order is uniquely visible and when politics get embedded into science in ways that can be harder to recognize after the controversy settles (e.g. Collins, 1981; Jasanoff, 2012; Latour, 1987; Nelkin, 1971; Shapin and Schaffer, 1985). In the case of interwar population science, the biologists and statisticians developed competing population problematizations, a term coined by Greenhalgh (2003: 164) to refer to 'particular formulations of the population problem at hand, together with its solution' that 'constitute a new demographic and policy reality by shaping what is thinkable in the domain of population'. Each problematization articulated a specific mode of data analysis to a specific population theory, generating divergent population problems with diametrically opposed solutions.

As biologists working before the rise of what Kay (1993) terms 'the molecular vision of life', Pearl and East focused on organisms, considering *national populations*, not the humans that comprised them, organic entities and therefore the appropriate level of analysis.[3] They conceptualized population change as a top-down process, driven by the availability of subsistence resources: When resources were plentiful, populations grew quickly, but when resources became scarce, growth slowed. They were not concerned with the vital processes that produced growth, namely birth, death and migration, assuming that vital rates would adjust automatically to maintain the correct aggregate growth rate. Dublin and Lotka, on the other hand, specialized in death and its most reliable predictor, age. Extending life table analysis from mortality to fertility, they found that births, too, were much more likely to occur at some ages than at others.[4] Their level of population analysis was the age-specific vital rate. Both analytic approaches indicated that, although the population of the United States was still expanding, the *rate* of growth had started to slow after World War I. Brookings Institution statistician Robert Kuczynski (1928) identified the same pattern in most countries of Western Europe.

Biologists and statisticians agreed on these empirical facts, but interpreted slowing population growth very differently, drawing on competing population theories and exhibiting the kind of 'interpretative flexibility' that Collins (1981) describes as characteristic of science in the making. Pearl (1924) understood the decreasing rate of growth in Malthusian terms: If populations inevitably grew to the limits of subsistence, a declining growth rate could only mean that the population in question was nearing its biological limit. The statisticians interpreted the slowing of population growth through the lens of mercantilism (see Anderson, 2015: 8), a population theory that antedated Malthus and cast population growth as a sign of good government and the primary source of economic dynamism and geopolitical strength. They attributed population change to a variety of social, economic and political factors acting on vital rates and feared that declining rates of population growth in the United States and Western Europe would weaken those countries relative to the faster-growing countries of Eastern Europe and East Asia (Dublin, 1932; Kuczynski, 1928).

These theories pointed to competing problem-solution pairings. For the Malthusian biologists, slowing population growth signalled impending *overpopulation*. For the mercantilist statisticians, it signalled impending *depopulation*. In the early 1920s, these problems were underdetermined by the data. They depended on scientists' preferred population theory, which aligned with the scientists' positions on immigration, one of the most pressing political issues in the United States after World War I. Industrialization had drawn workers from all over the world to the US, where race and national origin structured the labour market and constrained opportunity. As social inequality grew at the end of the 19th century, socioeconomic status became strongly correlated with race and national origin. In the first decades of the 20th century, many reformers began to locate the causes of poverty and its sequelae in the bodies of the poor, theorizing that people from different parts of the world had different levels of innate quality (Stern, 2005). Pearl and East marshalled their predictions of impending overpopulation as evidence for their preferred solution to poverty, immigration restriction (East, 1923; Pearl, 1922). Dublin, Lotka and Kuczynski, all of whom had been born in Europe (though

Lotka to American parents), used their predictions of impending depopulation to advocate *against* immigration restriction (Dublin, 1925; Dublin and Lotka, 1925).

Despite their competing approaches to population, Pearl, East, Dublin, Lotka and Kuczynski worked together to establish the International Union for the Scientific Investigation of Population Problems (IUSIPP, forerunner to today's International Union for the Scientific Study of Population) in 1928 and the PAA in 1931. Within the IUSIPP and the PAA, the division between the overpopulation and depopulation perspectives largely mapped onto age and disciplinary background. Biologists and older social scientists preferred Pearl and East's aggregate approach and Malthusian theory, while statisticians and younger social scientists, particularly those with quantitative training, preferred Lotka, Dublin and Kuczynski's vital rate approach and mercantilist theory. This latter approach required considerable mathematical sophistication and was inscrutable to many biologists and older social scientists (e.g. Hankins, 1931). It was, however, more attractive to the private and public funders of population science, whose support went almost entirely to the younger, mathematically oriented social scientists who had embraced Dublin, Lotka and Kuczynski's vital rate approach to population analysis and the mercantilist perspective that travelled along with it. During the 1930s, these social scientists began to identify themselves and one another as 'demographers'.[5]

Demographers' warnings about depopulation became more plausible in the 1930s, when the population of the US grew more slowly than the biologists had predicted, despite abundant food resources. In the 1920s, Pearl and East had pointed to the temporal coincidence between population growth and soil erosion in the US as empirical evidence of overpopulation. In so doing, they elided the fact that erosion resulted not from too many people *subsisting* on US agriculture, but rather too many people trying to *profit* from it (Lobao and Meyer, 2001). In the first decades of the 20th century, American farmers aggressively mined the soil to produce grain for export, in the process undercutting more sustainable production methods in other countries (Black, 1949). In the 1930s, demographer Pascal Whelpton (1934) warned that slowing population growth would soon result in agricultural overproduction across North America and Western Europe, a view very much at odds with Pearl and East's predictions of impending food scarcity, but one that was borne out during the Great Depression, when the US government paid farmers to take land out of production to address erosion and resulting dust storms and to avoid price collapse. Millions of people starved, not because there wasn't enough food, but because the market failed to allocate resources effectively, implicating the numerous social, economic and political institutions that mediate between population and food supply.

As depopulation came to seem more plausible than overpopulation, East shifted his focus back to plant genetics and Pearl realigned himself with demography, renouncing theories he had previously espoused (Lorimer, 1959). By the time World War II began, the controversy over population science had reached closure. Social scientists became the primary authorities over human population in the United States, and their problematization of population excluded a Malthusian link between human population and the natural environment. However, the controversy had a long afterlife that continues to reverberate today.

The survival of environmental Malthusianism

During the 1940s, environmental Malthusianism remained alive at the margins of science largely through the work of one man: anti-immigrant eugenicist Guy Irving Burch, founder of the Population Reference Bureau (PRB).[6] Though not a scientist himself, Burch aimed to present population science to the American public in ways that would promote the perception of a rapidly-growing US population straining at the limits of natural resources, thereby producing popular support for ongoing immigration restriction. In PRB materials and other publications of the 1930s, Burch (1937a, 1937b) introduced the term 'population explosion' to describe the rapid population growth he predicted on the horizon, at the same time that demographers warned about the threat of depopulation and agricultural overproduction. Burch (1949) dismissed these warnings as efforts by 'small-fry academics led by foreign born scientists' – specifically naming Dublin and Kuczynski – to discredit immigration restriction. In the second half of the 20th century, Burch and the PRB facilitated the uptake of environmental Malthusianism by natural scientists, philanthropists and businessmen.

Immediately after World War II, Burch, together with sociologist Elmer Pendell, wrote a book that aimed to provide scientific legitimacy to eugenics and immigration restriction in a post-Holocaust world. Initially self-published in 1945 under the title *Population Roads to Peace or War*, it was republished in 1947 by Penguin as *Human Breeding and Survival*. Citing interwar publications by Pearl and East, the book contended that the world had already passed its carrying capacity, a number Burch and Pendell (1947) pinpointed at 2.5 billion. They gleaned this number from the fact that, in 1940, when the Earth's population was around 2.5 billion, experts Burch and Pendell described as 'the technologists' had claimed that the Earth could provide for everyone. People starved not because there were too many of them, but because the Earth's resources were not being distributed effectively. Burch and Pendell interpreted this claim to mean that 2.5 billion was the *maximum* number for which the Earth could provide. It was considerably lower than the 5.2 billion East (1923) had previously calculated as the Earth's carrying capacity. Currently, there is no scientific consensus regarding how many people the Earth can support, with estimates ranging from 500 million to well over 1 trillion (Pengra, 2012).

Burch and Pendell described the recent war as a natural result of population growth and, therefore, evidence of overpopulation. However, overpopulation was not limited to the belligerent powers, they maintained. According to Burch and Pendell, Russia had turned to Communism in response to population pressure. Even the United States was not immune: drawing on East (1923), Burch and Pendell pointed to soil erosion as evidence that this country, too, was overpopulated. They described the New Deal as the beginning of tyranny creeping into the US in response to the resource scarcity and ecosystem degradation caused by population growth.

Burch and Pendell's critique of the New Deal reveals the ultimate target of their work: economic regulation. They decried any limitations on economic activity as a violation of democracy necessitated by out-of-control population growth. Instead, they recommended that population be regulated through eugenic measures such as further restrictions on immigration, sterilization of those they deemed unfit, and birth control for the

world's poor. Burch and Pendell called on the US to impose these measures on other countries through the new United Nations. In effect, they asked the United States and the United Nations to curtail the reproduction of the world's poor in order to protect the economic freedom of wealthy Americans.

Demographers paid little heed to *Human Breeding and Survival*, but environmental Malthusianism spread far and wide through the book's influence on two 1948 bestsellers, *Road to Survival* by ornithologist William Vogt and *Our Plundered Planet* by Fairfield Osborn, president of the New York Zoological Society. Historians have credited these books with launching the modern environmental movement and focusing it on human population (Desrochers and Hoffbauer, 2009; Robertson, 2012).

Vogt and Osborn portrayed humans as part of an ecological web, dependent for their very existence on the flora and fauna with which they co-existed. They contended that human greed, which promoted the mismanagement of natural resources, had begun to destroy this web. The solutions they proposed, however, like those proposed by Burch and Pendell, privileged the regulation of reproduction over economic or environmental regulation. Though aware of the role played by global capitalism in environmental destruction, Vogt and Osborn placed the ultimate blame not on industrial production, the capitalist impulse toward growth or insatiable consumer demands in the US, but on the quantity of the world's inhabitants. Reducing the number of people on the planet, they contended, would automatically reduce production and consumption without inconveniencing producers or consumers. Vogt and Osborn thereby naturalized profit-seeking and excessive consumption as quintessential and unavoidable human activities and blurred the distinction between inhabitants of the Global North, whose productive and consumptive activities drove environmental devastation worldwide, and inhabitants of the Global South, who were increasing in number more quickly but had much smaller ecological footprints.

Vogt (1948) openly acknowledged that he aimed to limit the world's poor and non-white populations for the benefit of wealthy Americans. In addition to reducing birth rates, he advocated increasing death rates by withholding public health measures and food aid to countries in the Global South (Powell, 2015). In contrast, Osborn (1948) called for population control across the board and worked hard to distance himself from the eugenic policies espoused by his father, Henry Fairfield Osborn, long-time director of the American Museum of Natural History. Despite these differences, Osborn and Vogt came together in the 1950s to slow population growth in developing countries through the Conservation Foundation, an organization Osborn founded in 1948 with the help of Laurance Rockefeller, grandson of the co-founder of Standard Oil (Winks, 1997). The Conservation Foundation worked with the Planned Parenthood Federation of America, of which Vogt served as executive director in the 1950s, shifting the organization's focus from developing birth control technologies for American women to developing population control technologies for the rapidly-growing countries of the Global South (Takeshita, 2012).[7]

It would be difficult to overestimate the impact of *Road to Survival* and *Our Plundered Planet* on postwar environmental Malthusianism. Each sold millions of copies and garnered considerable attention in the American press. Both books won awards and were widely translated. Their population analysis came entirely from *Human Breeding and*

Survival and other PRB publications and was therefore at odds with contemporary research in demography. The popularity of these books, however, made them impossible for demographers to ignore. PAA President Conrad Taeuber devoted the dinner session of the 1949 annual meeting to the critique of Vogt and Osborn (Mair, 1949).

Demography defines overpopulation

When Vogt and Osborn published their books, demographers were in the midst of developing their own problematization of overpopulation. It differed from the Malthusian problematization in that it focused on the relationship between national populations and economies, rather than global populations and ecosystems, and included no concept of a natural limit to population growth. Nonetheless, as demographers and their supporters invested in slowing population growth overseas, they found that the popularity of environmental Malthusianism facilitated acceptance of their work and helped them secure support from American foundations. For that reason, they silenced their scepticism about environmental Malthusianism through most of the 1950s and 1960s.

Demography's version of overpopulation emerged from demographic transition theory, first articulated in the early 1940s by Princeton University demographers to describe the supposedly-predictable demographic consequences of modernization (Kirk, 1944).[8] Mid-twentieth-century social scientists viewed modernity – epitomized by the United States – as the pinnacle of social, political and economic development, the terminus of a linear trajectory that all countries would eventually traverse (Ekbladh, 2010; Gilman, 2003; Latham, 2000). According to demographic transition theory, the supposedly universal process of modernization stimulated a brief period of population growth by reducing death rates, but also increased the number of people a society could support and eventually led to the adoption of small-family norms that would halt population growth (Davis, 1945). Demographic transition theory depended on the vital rate models developed by interwar statisticians, but replaced their mercantilist veneration of population growth with a modernist faith in industrialization as the source of economic growth and military might.

By 1949, Princeton demographer Notestein (1948) and his erstwhile colleague Davis (1944) had noticed that death rates were falling dramatically in some colonial territories, stimulating population growth in the absence of the modernization that they expected would trigger demographic transition. If population growth outpaced economic growth, they feared, these countries would never modernize. Rising population density would increase their vulnerability to natural disasters and economic shocks. In contrast to environmental Malthusians, who understood overpopulation as an *absolute* excess of population relative to natural resources on a global or regional scale, demographers understood overpopulation as a condition in which population *growth* outpaced economic growth on a national scale (Merchant, 2021; Murphy, 2017).

Notestein (1944) attributed the mismatch between population growth and economic growth not to the limits of the natural environment or to excessive reproduction, but to the structure of global capitalism. Multinational corporations extracted labour and resources from agricultural countries to enrich industrial countries. By funnelling profits back to the Global North, Notestein contended, these corporations prevented

modernization and promoted population growth in the Global South. Although Notestein did not address the natural environment, he implicitly challenged Vogt and Osborn's assumption that population growth in agricultural countries of the Global South drove the too-rapid consumption of the Earth's natural resources. Rather, in Notestein's assessment, rapacious extraction of those resources and unequal sharing of the profits therefrom fuelled population growth.

To solve this problem, Notestein (1944) initially proposed decolonization and local control over economic development, which he expected would stimulate the growth of indigenous middle classes worldwide and thereby trigger demographic transition. He found little support for this solution within the United States, however; perhaps this was the case because environmental Malthusianism had already captured the popular imagination. Instead of further developing his demographic critique of imperialism and global capitalism, Notestein (1945) soon began to recommend family planning as a means of promoting economic development in the colonial and decolonizing world.

Although most demographers aligned themselves behind Notestein's version of overpopulation, Kingsley Davis, who left Princeton for Columbia University in 1948, instead embraced environmental Malthusianism (Davis, 1948). When Osborn established the Conservation Foundation, Davis and his students were among the first recipients of research funds (McLean, 1952). Osborn and Davis (1955) collaborated on articles for *The Wall Street Journal* that attributed starvation in the Global South to population growth and argued against allowing more immigrants into the United States on environmental grounds. Historians have cited Davis's advocacy for environmental Malthusianism, along with that of some of his students, as evidence that demographers generally supported environmental Malthusianism (e.g. Robertson, 2012). This could not have been further from the truth. Davis's commitment to environmental Malthusianism did not bring this perspective into demography's mainstream but rather reflected and facilitated his retreat from mainstream demography when he left Princeton. He moved even farther away – both geographically and conceptually – when he relocated to UC Berkeley in 1955.

Notestein, on the other hand, *was* the mainstream of demography. He directed Princeton's Office of Population Research (OPR) from its 1936 inception until 1959, and directed the UN Population Division in an interim capacity when it was established in 1947. In 1952, he teamed up with John D Rockefeller, 3rd, older brother of environmentalist Laurance Rockefeller and Chairman of the Rockefeller Foundation, to establish the Population Council, a nongovernmental organization that channelled money from large US-based foundations into overseas family planning programs, promising to stimulate economic growth by reducing population growth. Together with the Ford Foundation – with which it closely coordinated its programs – the Council quickly became the largest source of funding for demography in the United States. With this funding, the Council shaped demography in OPR's image, expanded it dramatically, and focused its attention on slowing population growth in the Global South (Caldwell and Caldwell, 1986; Merchant, 2017).

Notestein and the Population Council did not publicly challenge environmental Malthusianism, nor did they oppose its popularization in the 1950s. Burch died in 1951, but his life's work continued through the efforts of Hugh Everett Moore. A businessman

and peace activist, Moore got interested in population when he read Vogt's *Road to Survival*. Following the footnotes to Burch and Pendell's *Human Breeding and Survival*, Moore became a supporter of the PRB and a friend of Burch (Moore, 1948). During the last 2 years of Burch's life, Burch imparted his population anxieties to Moore. These anxieties shifted from Europe, where Burch (1948) feared that starving and displaced people would seek refuge in the United States, to Africa, Asia and Latin America, where public health measures had reduced death rates, portending rapid population growth. With the opening of the Cold War, Burch (1950a) worried that this 'explosion in world population … could easily bankrupt the United States in its efforts to support the large increase in population to prevent these areas from becoming communistic'. He feared that continued population growth would spark warfare, which promised further environmental devastation. Burch (1950b) confided to Moore that 'if the population explosion continues (we are really already in it), the atomic explosion cannot be suppressed indefinitely'.

After Burch's death in 1950, Moore (1954) self-published a pamphlet titled *The Population Bomb*, which popularized Burch's explosive view of population and updated *Human Breeding and Survival* for the Cold War era. The first edition came out in 1954, and Moore frequently reissued it over the next 15 years. Moore's *Population Bomb* described population growth in Africa, Asia and Latin America as leading inevitably to the spread of global communism and nuclear war, and called on the US government to limit population growth in these parts of the world. Moore circulated the pamphlet throughout his wide social and professional network, securing the partnership of influential businessmen and diplomats (Griessemer, 1957). Best-known among these partners was General William Henry Draper Jr., chair of a 1958 committee charged by President Eisenhower with evaluating the US military aid program. Directly influenced by Moore's *Population Bomb*, the Draper Commission included in its final report a recommendation that the United States add population limitation measures to its foreign policy (Moore, 1958, 1959). Through the 1960s, Moore (1967) and Draper ran full-page ads in the country's major newspapers, demanding that the US government actively forestall population growth overseas.

Even though most demographers never signed on to environmental Malthusianism, the demographically-oriented Population Council collaborated with the three Malthusian organizations – the Conservation Foundation, Planned Parenthood and the PRB – to stoke public anxiety about overpopulation (Cook, 1958; Population Council, 1955). The Council funded Planned Parenthood's efforts to develop contraceptive technologies that could be imposed on women in the Global South, such as the IUD, and helped secure funding for the PRB from the Ford Foundation (National Academy of Sciences, 1952; Population Reference Bureau, 1952; Takeshita, 2012). The leadership of the Council and the PRB maintained backchannel communications while keeping the two organizations formally separate (Osborn, 1953). These groups collaborated because their separate problematizations of population – economic and environmental – appeared to point to a common solution: nominally voluntary family planning programs that employed small-family propaganda to promote uptake of the IUD.

A fragile but symbiotic relationship between environmental Malthusianism and demography emerged from this collaboration. Environmental Malthusianism generated

public opinion favourable to demography and the Population Council's family planning programs, while demography provided tacit support to environmental Malthusianism by refraining from public critique. The Council worked quietly at first, fearing that public attention to its overseas family planning activities would generate opposition, both in the United States and abroad. Its leaders soon found, however, that Vogt and Osborn's books, Moore's pamphlet and Moore and Draper's advertising campaign softened public opinion toward family planning (Osborn, 1966).

Probably the most successful collaboration between the Council and the Malthusian organizations resulted in the publication of *Population Growth and Economic Development in Low Income Countries: A Case Study of India's Prospects*, known informally as the Coale-Hoover (1958) Report after its authors, Princeton demographer Ansley J Coale and CIA economist Edgar M Hoover. Inspired by Moore's *Population Bomb* and funded by the World Bank, the Coale-Hoover Report published the results of a simulation study finding that India's per capita national income over the next 30 years would be 40% higher if birth rates could be cut in half (Anderson, 1954; Coale, 2005; Notestein, 1954). Although the study's initial assumptions entirely determined its outcome, Moore, the PRB and the Population Council presented it to the US government and the governments of developing countries worldwide as definitive proof that 'continued high fertility is an impediment if not a total barrier to economic and social development' (Coale, 1967: 164).

This study served for the next 30 years as empirical evidence that slowing population growth could spur economic development. No comparable study demonstrated that slowing population growth could protect the natural environment, but the Coale-Hoover Report generated enough support for family planning to satisfy Moore and Draper and the Malthusian organizations for a while. With the Coale-Hoover Report supposedly having established the necessity of reducing birth rates overseas, demography's patrons turned the field's attention to research on how exactly to do that (Merchant, 2017, 2021). Flush with funding generated by public concern about overseas population growth, demography programs in US universities recruited international students, who were expected to return home and lobby for government family planning programs (van der Tak, 2005). American demographers also worked in the Global South, collaborating with the Population Council to launch family planning programs under the guise of demographic research (Freedman and Takeshita, 1969; Greenhalgh, 1996; Riedmann, 1993). In 1965, after the Population Council had funded a National Academy of Sciences (1963) panel that reiterated the results of the Coale-Hoover Report without any further research, the US government established an Office of Population within the US Agency for International Development (USAID), offering family planning assistance worldwide and funding nongovernmental organizations that were already in the family planning business, beginning with the Population Council and Planned Parenthood (Cornell, 1962; Notestein, 1962; Ravenholt, 2002).

Working together, the Population Council and the Malthusian organizations had, by the late 1960s, generated the widespread perception – not just in the United States, but throughout much of the world – that human numbers were rising too quickly and that something needed to be done. This was, however, primarily a victory for demography and the Population Council, which largely controlled the terms of the solution to the

perceived population problem. Before long, Moore and Draper grew frustrated with the slow results of the nominally voluntary family planning programs promoted by demographers and the Population Council. Beginning in the late 1960s, they enlisted new environmentalist and scientific allies, in an effort to increase the intensity of the US government's population control efforts, both at home and abroad, alienating demographers in the process.

The other population bomb drops

Environmental Malthusianism became a mass movement in the late 1960s, galvanized by two 1968 publications, both clearly influenced by Vogt and Osborn: a bestselling paperback by Stanford University biologist Paul Ehrlich titled *The Population Bomb* and a brief article titled 'The tragedy of the commons', published in *Science* by UC Santa Barbara biologist Garrett Hardin. Although these works are today remembered as the foundational texts of environmental Malthusianism, they were in their time anything but original (Mann, 2018).

Ehrlich's *Population Bomb* wove together popular concerns about population growth, the ever-looming possibility of a nuclear world war and the destruction of the natural environment. It claimed that the Earth was already overpopulated from an environmental perspective and that nothing could prevent widespread famine in the next decade. According to Ehrlich, only a massive 'die back' of people could avert imminent nuclear war. For that reason, he recommended that the United States cut off food aid to countries that were already 'beyond hope', including India and Egypt (Ehrlich, 1968: 72–80). Ehrlich also saw overpopulation in developed countries, attributing the social, economic and environmental ills that had mounted in the United States across the previous decade – including the recent wave of urban uprisings – to domestic population growth.

As was true of the environmental Malthusians who shaped his worldview, Ehrlich pointed to the world's challenges as indicators of overpopulation without any empirical evidence of causality. The claims he made for the effects of population growth were capacious enough that empirical evidence would have been hard to come by and, within the epistemic space of the Malthusian population problematization, the ills themselves were the evidence. Malthus (1789) had theorized that all of the world's problems stemmed from the pressure of population on natural resources, and had therefore viewed all of the world's problems as proof that human population *was* pressing on natural resources. Nearly 200 years later, Ehrlich made the same kind of claim. To convince an audience that hadn't already accepted the Malthusian perspective, Ehrlich might have attempted to correlate population growth with environmental degradation, either cross-sectionally between locales or longitudinally within locales. He might have also carried out a simulation study, as Coale and Hoover had done to establish the relationship between population growth and economic development. He did none of these things, however, perhaps because questions of human population and the environment were far afield from his specialty in butterfly biology.[9] Instead, Ehrlich (1968: 43) simply asserted that 'the causal chain of deterioration is easily followed to its source. Too many cars, too many factories, too much detergent, too much pesticide, multiplying contrails, inadequate sewage treatment plants, too little water, too much carbon dioxide – all can be

traced easily to *too many people*'. Yet, if Ehrlich had actually tried to trace the causal link to 'too many people', he might have found what Barry Commoner did in 1971, namely that the increase in pollution in the United States since World War II had stemmed almost entirely from new production methods and rising per-capita consumption rather than from population growth (Commoner, 1971).

In 'The tragedy of the commons', Hardin refuted Adam Smith's proposition that the emergent effect of individuals acting in their own interest would benefit society as a whole, arguing that the 'invisible hand' of the market fails to effectively allocate resources held in common, such as air, water and land. However, most of the article treats these environmental resources as a metaphor for the material resources Hardin argued were being unfairly transferred from the more to less deserving by the welfare state as a result of the excessive childbearing of the poor. Hardin (1968: 1245) connected welfare to the natural environment with the unsubstantiated contention that 'the pollution problem is a consequence of population'. As a solution to the tragedy of the commons, Hardin (1968: 1247) proposed governmental regulation of childbearing, which he described as 'mutual coercion, mutually agreed upon by the majority of people affected'. Hardin's formulation elided the fact that such limits typically fall heaviest on the poor and nonwhite, though for him this was a feature rather than a bug. He favoured governmental regulation of childbearing because he believed that poor women and women of colour were least likely to use birth control on their own and he feared their increase as a proportion of the world's population. Hardin thus cast the supposedly excessive existence of the world's poor as a threat to the very survival of the world's wealthy.

Recent scholars have recognized the influence of Vogt and Osborn on Ehrlich and Hardin (Desrochers and Hoffbauer, 2009; Robertson, 2012; Sayre, 2008), but less so that of Moore and Draper. Just before 1968, Moore and Draper had begun a new advertising campaign in American newspapers under the auspices of a new organization, the Population Crisis Committee (PCC). Moore and Draper had founded the PCC in response to a request from Reimert Ravenholt, director of USAID's Office of Population, to generate public pressure to raise USAID's population control budget (Piotrow, 2002; Ravenholt, 2002). Although they ultimately aimed to increase funding for *overseas* population control, Moore (1968) and Draper believed they could more effectively pique American concern by bringing the population problem home. They accomplished this by focusing their advertisements on population growth in the United States, pointing to social strife and environmental degradation as evidence that the US population had surpassed its natural limit.[10]

Ehrlich's (1968) book borrowed more than its title from Moore's *Population Bomb* pamphlet. It also seamlessly combined the themes of Moore's pamphlet, which warned that continued population growth would inevitably lead to nuclear war, with those of Moore and Draper's PCC advertisements, which blamed population growth for environmental degradation, rising crime rates and the social strife that threatened to tear the United States apart at the end of the 1960s. Moore (1969) mailed Ehrlich's book to his supporters with a letter stating that it 'expresses my [Moore's] own view of the frightening prospects of the world population out of control'. Hardin's contention that the reproduction of the poor in the United States would drain public resources echoed an advertisement run by Moore and Draper on April 15, 1968, warning taxpayers that

population growth would lead to rising tax rates in order to meet 'the ever-mounting costs of welfare, education, pollution control, conservation and other services' (Population Crisis Committee, 1968).

Demographers and environmental Malthusians began to part ways when environmental Malthusians decided that the solution to the *economic* population problem – nominally voluntary family planning – would not solve the *environmental* population problem. Kingsley Davis made a presentation to the National Academy of Sciences, later published in *Science*, contending that the Population Council's family planning programs were incapable of reducing population growth quickly enough to prevent ecological catastrophe (Davis, 1967).[11] This presentation revived the slogan 'zero population growth' to describe the goal of environmental Malthusianism. It subsequently became the name of a grassroots organization led by Ehrlich that pressed for explicit limits on childbearing worldwide, beginning in the United States. Davis was the only prominent demographer to join its board.

With the publication of Ehrlich's *Population Bomb* and Hardin's 'Tragedy of the Commons' and the simultaneous turn to domestic issues in the PCC's advertising campaign, most demographers felt that environmental Malthusianism had gone too far. Their problematization of population excluded the possibility that the United States was overpopulated and eschewed explicit limits on childbearing. Demographers and the Population Council defined such limits as coercive and warned that 'coercive measures to force contraceptive practice are more likely to bring down the government than the birth rate' (Coale, 1988). They saw population growth as a threat to economic development and political stability in the Global South, but viewed coercive population control as an even greater threat.

Demographers initially spoke out against environmental Malthusianism and Zero Population Growth (ZPG) primarily amongst themselves, fearing that more public opposition would undermine the broader population movement. Princeton demographer Ansley Coale, 1968 president of PAA, devoted his presidential address to the question 'Should the United States start a campaign for fewer births?' His answer was 'no'. Implicitly critiquing Ehrlich's *Population Bomb* and PCC newspaper ads, Coale (1968: 467) complained that 'it has become fashionable to explain almost every national failure or shortcoming by rapid population growth', when the vast majority of the country's problems had little to do with population. He refuted Hardin's equation of population with pollution, pointing out that 'a population one-half or three-quarters the size of the current one in the United States could ruin the potability of our fresh water supplies and poison our atmosphere by the unrestricted discharge of waste' just as easily as could a larger one (Coale, 1968: 470). Population control would not necessarily help the environment.

The 1970 PAA meeting featured a roundtable on ZPG, where Notestein contested Ehrlich and Hardin's attribution of environmental degradation to population growth, demonstrating that increases in pollution had far outpaced increases in population. He called population control 'a distraction from an immediate attack on pollution' by more direct means (Notestein, 1970a: 445). Proponents of environmental Malthusianism often portray their critics as ideological opponents of birth control or as deniers of the environmental crisis. Coale and Notestein were neither. Coale had been a student of Notestein's

at Princeton and had replaced Notestein as director of OPR when Notestein retired to head the Population Council. Both were committed to the promotion of family planning as a means of stimulating economic development in the Global South. Both men also favoured environmental protection, but preferred such economic solutions as 'cap and trade' systems for pollutants.

Even Ehrlich viewed population control as an indirect approach to environmental protection. He had embraced it only after his earlier attempts to promote the regulation of pesticide use in US agriculture failed (Ehrlich, 1968). Ehrlich's ZPG colleagues advocated for population control not because they perceived it as the most effective means of protecting the environment, but because they perceived it as the most effective means of staving off environmental regulation. The organization's leaders explained that, 'to the extent that we can protect the environment for future generations only at expense to the present generation in material standards, government controls and loss of freedom or dependence upon foreign sources of supply, we will choose less environmental protection' (Zero Population Growth [ZPG], 1976). As had been the case for Burch, Vogt, Osborn, Moore and Draper, the leaders of ZPG sought population control to protect their access to environmental resources, not to protect the environment itself.

Demographers also contested Moore, Draper, Ehrlich and Hardin's attribution of domestic social strife to population growth. University of Chicago demographer Philip Hauser (1970: 455) described 'the population explosion' as 'a smoke screen to obscure other problems that should have priority, including the problems of the slums, racism and the "urban crisis" in general'. Demographer Conrad Taeuber, who supervised the 1970 US Census, agreed, announcing that 'economic and social factors are more important than population growth in threatening the quality of American life' (Newsweek, 1971). The demographers of President Nixon's Commission on Population Growth and the American Future shared Hauser and Taeuber's perspective (Presidential Commission on Population Growth and the American Future, 1972). By the time the Commission released its final report in 1972, the US birth rate had fallen below replacement and ZPG (1975) had turned its attention to immigration restriction as the most effective means of population control, reconnecting environmental Malthusianism with its interwar anti-immigrant roots (Bhatia, 2004; Normandin and Valles, 2015).

Although demographers of the 1960s and 1970s generally attacked environmental Malthusianism in professional venues rather than public ones, their critique was open enough among demographers, and between demographers and environmental Malthusians, as to shine through clearly in the archival record. In 1970, an internal Population Council memorandum described ZPG as 'a cult paying lip service to ecology but rather lightly based in science and deeply rooted in emotion' (Berelson, 1970). Ehrlich (1969) knew exactly what the Council thought of him, telling his ZPG associate Richard Bowers that 'the Population Council (or at least its biggest wheels) hates my guts, those of Kingsley Davis, Garrett Hardin and indeed anyone else who has taken an approach to population control except their "go slow and use family planning" one'. Notestein (1970b) declined to review Ehrlich's *Population, Resources, Environment*, reasoning that 'I've been saying such nasty things about Ehrlich and doing so publicly, my friends would never believe I could give him an honest break'.

The tension between demography and environmental Malthusianism mounted in the early 1970s, coming to a head at the 1974 UN Population Conference. By that time, Moore had passed away and Draper had become US representative to the UN Population Commission. With the 1974 conference, Draper aimed to bring world leaders together to agree on a World Population Plan of Action. Yet, the US delegation, led by Draper, could not agree with the Population Council, whose demographers served as expert advisors to the UN Population Commission, on the goals of the Plan. Draper pushed for quantitative birth rate targets for all countries of the world (Claxton, 1973). Instead, the Population Council sought commitments from the world's governments to make contraception widely available to those who wanted it.

At the meeting, however, representatives of nonaligned countries joined with communist and Catholic countries in rejecting both US proposals (Claxton, 1974). Instead of family planning programs or quantitative population targets, leaders of nonaligned countries recommended implementation of the New International Economic Order that had been proposed in 1972 by the UN Conference on Trade and Development and adopted earlier in 1974 by the UN General Assembly (Gilman, 2015; Ogle, 2014). While many of these leaders had accepted family planning assistance from USAID and such nongovernmental organizations as the Population Council and Planned Parenthood, they rejected the idea that family planning or other approaches to population control could alleviate international inequities, instead demanding more control over the terms of international trade (Finkle and Crane, 1975). They laid responsibility for the worsening global environmental crisis on the countries of the Global North, as they had done 2 years earlier at the UN Conference on the Human Environment in Stockholm (Selcer, 2018).

Conclusion

Despite the wholesale rejection by most of the world's leaders of the idea that rapid population growth was the primary cause of either poverty or environmental degradation, both population problematizations remained firmly lodged in the American popular, policy and scientific imaginaries. In 1992, the Royal Society of London (1992) issued a joint statement laying the blame for the ongoing environmental crisis at the feet of human population growth. Although natural scientists spoke publicly about the effects of population growth on the natural environment, however, they did little empirical research on the topic. Having established that human activities drove ecosystem decline, they simply assumed that fewer people would mean fewer of those deleterious activities (Sayre, 2012). In the last two decades of the 20th century, critiques of environmental Malthusianism came primarily from the anti-racist feminist Committee on Women, Population and the Environment, which promotes reproductive and environmental justice and mounts scientific challenges to claims that population growth promotes environmental degradation or prevents economic development (e.g. Silliman and King, 1999).

US-based demographers began to venture into environmental research only in the 1990s. Some were young scholars who had grown up in an age of popular concern for the world's ecosystems. Others took inspiration from a request for applications issued by the National Institutes of Health in 1994, which sought to promote research that would

specify the reciprocal relationship between population dynamics and the environment at the micro level (National Institutes of Health [NIH], 1994). Demographers soon found, however, that the obvious publication venue for this research – *Population and Environment*, the only scholarly journal purporting to focus on the relationship between human population and the natural environment – had become a safe haven for eco-fascism and white nationalism, rather than an organ for responsible scholarly research in either demography or the environmental sciences.

Population and Environment had been launched in the early 1980s by the American Psychological Association (APA) to publish research on the *social* environment as a determinant of childbearing and other demographic behaviour. The journal broke its ties with the APA and shifted its focus to the natural environment toward the end of the decade, when Virginia Abernethy, described by the Southern Poverty Law Center (Southern Poverty Law Center [SPLC], 2018a) as 'push[ing] repugnant, race-based politics from behind an academic veneer', took over as editor. In 1998, the journal replaced Abernethy with psychologist Kevin MacDonald, who the SPLC describes as 'the neo-Nazi movement's favourite academic' (Southern Poverty Law Center [SPLC], 2018b). During Abernethy's editorship, the journal focused on immigration, taking a nativist stance and painting immigration to the United States as a key driver of ecosystem degradation. During the MacDonald period, the journal became an outlet for racist evolutionary scholarship sponsored by the Pioneer Fund (Tucker, 2002).

When Springer acquired *Population and Environment* in 2004, the publisher worked with demographers to oust the journal's editorial board, redesign its cover, rewrite its mission statement and clear out its publishing queue, turning it into the reputable demography journal it is today (Evelien Bakker, 2019, personal communication; Lori Hunter, 2018, personal communication). Since then, its editors have fostered the development of high-quality research that explores reciprocal links between environmental and demographic processes. Although such research continues to demonstrate that the relationship between population growth and environmental degradation is much more complicated than natural scientists tend to assume, and although scientists have repeatedly failed to identify a direct relationship between population growth and greenhouse gas emissions (e.g. Satterthwaite, 2009), environmental Malthusianism is currently enjoying a resurgence. Today, as in the times of Ehrlich and Hardin, Vogt and Osborn as well as Pearl and East, environmental Malthusianism provides scientific legitimacy for policies that police the reproduction of the world's most vulnerable people while leaving more proximate causes of environmental devastation unaddressed (Ojeda et al., 2020).

Since the end of World War II, environmental Malthusians have pointed to ecosystem degradation as supposedly obvious evidence that the Earth is already overpopulated and have called for population control as an alternative to environmental regulation and economic redistribution. Despite their scientific opposition, demographers collaborated with environmental Malthusians just long enough in the 1950s and 1960s to create a global population movement that advanced the agendas of both groups.[12] The harms caused by that movement – both by governments that explicitly limited childbearing, such as China, and by supposedly voluntary programs that nonetheless imposed contraception where it was not desired – have been well documented (Connelly, 2008; Greenhalgh, 2008; Hartmann, 1995). However, even the most critical histories of the

population control movement largely fail to recognize the illusory nature of the scientific consensus that claimed to undergird it.

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Notes

1. This article focuses on Anglophone demography because it was Anglophone demographers whose work was most relevant to environmental Malthusianism. Hispanophone demographers, located primarily in Latin America, focused on critiques of the economic overpopulation narrative, while Francophone demographers, in both France and Africa, took a pronatalist approach that was explicitly at odds with population control.
2. Murphy's (2017) excellent account of demography's 'economization of life' incorrectly portrays Raymond Pearl as the interwar progenitor of demography.
3. The analysis of human population, whether by biologists or statisticians, assumed in advance (and generally continues to assume) that populations follow the boundaries of nation-states, simply because the analysis of human population dynamics relies largely on data collected by states, typically through censuses and vital registration systems. This national object of analysis was so natural to those involved as to go unmentioned.
4. These statisticians modelled fertility as a function of female bodies, a convention that became standard in demography (Merchant, 2021).
5. This story parallels the one Greenhalgh (2008) tells about the rise of population science in China in the 1970s. In both cases, social scientists and natural scientists vied for authority over population, and in both cases the more quantitative group – the one whose analysis seemed more 'scientific' – won. In the interwar US, that group was the (younger) social scientists; in 1970s China, that group was the natural scientists.
6. This was not a case of 'undead science', as described by Simon (1999). By the end of the 1930s, professional scientists had either adopted the demographic perspective or abandoned population science. Mid-twentieth-century champions of Malthusianism were primarily gentleman science enthusiasts working through public opinion and policy channels.
7. For the distinction between birth control and population control, see Takeshita (2012) and Merchant (2021).

8. The pattern of demographic change formalized in demographic transition theory had previously been noted by Thompson (1929) and Landry (1934).
9. Ehrlich and Holdren's (1971) I=P*A*T (environmental impact is equal to the product of population size, affluence and technology) equation is often cited as evidence for the impact of population growth on the environment, but it is a heuristic, a formalization of theory, not an empirical finding.
10. The following advertisements in *The New York Times* are examples: 'Have you ever been mugged?' (3 Oct, 1968), 'How many people do you want in your country?' (12 May, 1969), 'Warning: The water you are drinking may be polluted' (12 June, 1968) and 'This is the crime explosion' (8 Dec, 1968).
11. Berelson (1969), a propaganda expert who became president of the Population Council in 1968, published a response titled 'Beyond family planning' in 1969. Historians frequently point to this article as evidence of the Population Council's efforts to step up their population control efforts, but it is in actuality a reaffirmation of the Council's commitment to (supposedly) voluntary family planning.
12. For a more recent version of this kind of 'structured disunity' in the population field, see Halfon (2006).

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