Let us [for the sake of the argument] accept the idea that women should stick to their own jobs – the jobs they did in the good old days before they starting talking about votes and women’s rights … It is a formidable list of jobs: the whole of the spinning industry, the whole of the dyeing industry, the whole of the weaving industry. The whole catering industry and … the whole of the nation’s brewing and distilling. All the preserving, pickling and bottling industry, all the bacon-curing. And (since in those days a man was often absent from home for months together on war or business) a very large share in the management of landed estates. Here are the women’s jobs – and what has become of them?

They are all being handled by men. It is all very well to say that woman’s place is the home – but modern civilisation has taken all these pleasant and profitable activities out of the home, where the women looked after them, and handed them over to big industry, to be directed and organised by men at the head of large factories. Even the dairy-maid in her simple bonnet has gone, to be replaced by a male mechanic in charge of a mechanical milking plant.¹

Dorothy L. Sayers, one of the first women to graduate from the University of Oxford, was amongst several things a Christian humanist. She penned an essay titled ‘Are Women Human?’ towards the end of her life in the 1950s arguing that each woman ought to be judged in the workplace on the individual basis of her merits and capabilities rather than being dismissed simply on account of her gender. The topic of this chapter was largely spawned by Sayers’s comments on the enormous changes that occurred in the homes of all classes in England during the industrial revolution. In this chapter, I will be arguing that the changes to home-life brought about by technological development during the industrial period have continued in the post-industrial era to the point where

the consumption of the average suburban home today is unsustainable both for economic and ecological reasons. I suggest that there is a need to re-visit aspects of homemaking prior to the industrial period. Also, just as importantly, I suggest that we need to re-invent them in light of subsequent technological developments in order to adapt to the modern phenomenon of suburban life, which is the prevalent habitat for many in developed nations today, at least in the English-speaking world. I shall also be arguing that a wholesale rehabilitation of homemaking requires a cultural shift in worldviews, and I will try to lay the ethical basis for this new way of life that will also provide the guidelines for developing and using technology in the home in the future.

The Role of Technology in Changing the Home from a Place of Production to a Place of Consumption

Prior to the industrial period in the United Kingdom and United States, people mostly lived in villages or small towns, and homes were in varying degrees places of production where most of the household's food, clothing, energy, water and education needs were provided, and extra income derived from cottage industries. Each parent and child had an important part to play in the ongoing economic concern of the household, each being involved in a wide range of highly skilled tasks including sewing, spinning and weaving, growing vegetables, animal husbandry, wood-working, tanning, food-preserving, threshing and milling, baking bread and brewing ale, milking and cheese-making.2

Due to the rapid technological advances during industrialisation in striving for ever greater efficiencies to maximise profit, many of the tasks traditionally performed in the household became mechanised, outsourced to specialist technicians, and eventually became the province of large companies.3 Numerous changes occurred along gender lines. A feature of the second industrial revolution in the late nineteenth and early twentieth centuries included men leaving home to work in the factories or office buildings, often involving long commutes to the cities. This phenomenon continued well into the twentieth century. Aside from the brief period during mobilisation in the early 1940s when women took the place of men in the workforce, married women tended to stay at home and focus


on child-rearing, cleaning and cooking. The housewife, targeted as a consumer, became the focus of an unrelenting marketing campaign for modern labour-saving technological devices. Homemaking, which during the pre-industrial and early industrial periods supplied many of the chief needs of the household, requiring a diverse range of skills and expertise, within a few generations became relatively deskilled. Homemaking depreciated to home-duties.

With industrialisation came urbanisation and eventually a comparatively higher standard of living. The innovation of mass transit systems, the mass-production of automobiles, federal subsidies for the construction of highways, and the availability of cheap oil, made possible the suburban sprawl and the homogenisation and replication of many amenities. Clothing, furniture, and food, packaged and prepared, transported from all corners of the earth, could now be bought abundantly, conveniently and cheaply from the local supermarket and shopping mall. In this relatively rapid transition, the home changed from a place of production to a place of consumption.

Since the 1970s the trend of increasing household consumption, fuelled by the availability of easy credit, has continued to the extent that it is now quite common for both partners to work full-time in the market economy in order to finance the concomitant increase in expenditure.4

The Need to Curtail Consumption and Contract the Market Economy in Order to Promote Ecological Sustainability

There are three arguments why it is important to reverse the consumption spiral of the home and rehabilitate homemaking as a productively sustainable enterprise in the suburbs: the global-ecological, the domestic-economic, and the personal-psychological. These arguments are not necessarily mutually exclusive, but they do all require a massive cultural change in terms of human values and approaches to technology.

The Global-Ecological Argument

Technological advances and the availability of cheap oil in the industrial and post-industrial periods have led to the rise of a centralised market economy that is global in scale, providing an unprecedented increase in living standards

in the developed nations which has had a trickling effect even to the poorest nations. The so-called Green Revolution, for example, allowed cheap oil-driven technological developments in agriculture and, when applied particularly to developing nations, brought about a manifold increase in grain production. This enabled the world to sustain a population that has exploded from 2.5 billion in 1950 to around 7 billion in 2014, forestalling predictions of global famines in the 1970s and 1980s.5

Nevertheless, since the 1970s there has been a growing number of economists, scientists and environmentalists who have become alarmed at the side effects of the successful growth of the market economy, and they question whether we can, or even if it is desirable to, carry on business as usual, that is, a global economy predicated on indefinite continual growth. Ecosystems of all kinds are under threat with deforestation, fish depletion in the oceans, biodiversity loss, water shortages and excessive carbon dioxide emissions from human activities leading to climate destabilisation. According to the Global Footprint Network, these are the costs of our ecological overspending. At some point in the mid-1970s, we crossed a critical threshold where human consumption of renewable ecological resources began outstripping what the planet could produce. Today, human consumption of renewable resources and services is equivalent to that of more than one and a half earths and is on track to require the resources of more than two earths by the 2050s.6

Foreshadowed by John Stuart Mill over 150 years ago, critics of mainstream economics are insisting that there are indeed limits to growth in terms of human population and per capita resource use.7 The market economy is seen to be a subsystem of a larger ecosystem (the natural world), which is finite, non-growing and materially closed. There are thus limits to which the finite ecosystem is able to absorb wastes and replenish raw materials in order to sustain the market economy. Herman Daly talks about there being an optimal point after which economic growth becomes uneconomic growth, producing ‘bads’ faster than goods. This is when losses incurred from the depletion and deterioration of the

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more valuable natural capital (fish, air, minerals, water) exceeds the man-made capital produced (such as roads, appliances and cars). According to Daly, the economies of most, if not all, developed nations have already gone past this optimal point and are thereby in a stage of producing more ‘illth’ than wealth.8

Clearly to address this uneconomic growth there is a need for adjustments to the economy to make it more ecologically sustainable. Ecological sustainability here needs to be understood in terms of the environment’s capacity for supplying the natural resources necessary for production and its capacity for absorbing the end waste.9 This raises the question of what we can adjust to reduce the environmental impact to an ecological sustainable level. In 1974, Holdren and Ehrlich put forward the case that population growth, rising per capita consumption and disruptive technologies each contribute to make human civilisation a global ecological force;10 thus, environmental impact is a function of population, affluence and technology.11

Politicians understandably prefer to focus on the technological part of the equation and neglect the sensitive and potentially unpopular factors of population control and reducing affluence. However, there are many reasons why techno-optimism is unfounded and that improving technology efficiencies alone, while necessary, will not be sufficient to lead us to ecological sustainability.12 Population control is a serious factor that can no longer be avoided and has become complicated by the obesity pandemic in many of the affluent and developing countries of the world. The global ecological footprint of the human species is not solely due to rising population but also to the increase in average body mass.13

The focus of this chapter is on the other politically sensitive issue, the second parameter on the right hand side of the IPAT function: the need to scale back...
our consumption or affluence in order to live in an ecologically sustainable way. There is an urgent need to reduce our consumption of renewable resources to pre-mid 1970s levels, in other words, to what one planet can sustain. It is also vital that we scale back the emissions from both renewables and non-renewables, such as fossil fuels, in both production and transport to ensure that the atmospheric concentrations of carbon dioxide, methane, and nitrous oxide are below the levels required to meet a specific warming target and in order to avoid catastrophic anthropogenic climate change.14 The most obvious way to cut down our consumption is a large-scale commitment to participate much less in what Juliet Schor calls the ‘business as usual’ economy by working shorter hours combined with lower income.

Studies have shown a direct correlation between the number of hours worked in a household and the total consumption. Schor refers to an unpublished French study by François-Xavier Devetter and Sandrine Rousseau in 2009, titled Working Hours and Sustainable Development,15 which found that, after controlling for income, households with longer working hours tended to increase their spending on housing (buying larger homes and more appliances), transport (where the longer hours tended to reduce the use of public transport), and hotels and restaurants, these being identified as three of the most environmentally damaging expenditure areas in terms of carbon emissions and ecological footprint.16

Working shorter hours with less income and self-provision through homemaking is the Green solution. It leads to lower resource use and to changes in the types of goods and services that are consumed: luxuries like overseas vacation travel, restaurants, consumer electronics and other discretionary items will be less in demand. In turn, the home increasingly will be the locus for providing more of the household’s energy, shelter, food and clothing needs.17

The Domestic-Economic Argument

In 1996, the philosopher Frithjof Bergmann, Professor of Philosophy at the University of Michigan and the founder and director of New Work, an organisation dedicated to exploring and promoting innovative technologies

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17 Schor, Plenitude, 112–16.
and enterprises for living in a post-employment world, published a paper, which he had written fourteen years previously and had wittingly only made minor adjustments prior to publication.¹⁸ In this paper, he proposed that with the current technical capacity half the sum total of all the currently existing jobs could soon be eliminated. Reading through the list of occupations threatened by the incursion of technology that he compiled over thirty years ago, it is impossible not to be impressed with his prognosis: price scanners doubling the output of the supermarket clerk; word processors reducing office work in much the same way that electrical devices compressed housework down to perhaps a tenth of what it was before; even skilled jobs like teaching were threatened with the introduction of classes taught via cable television; computers replacing the need for car mechanics, stock brokers, travel agents and so on.¹⁹ In each case, the impact of technology is the same: to deskill and dehumanise the work and make the worker redundant.²⁰

Many people hold to the idea that enough jobs will be created to replace those lost to technology. Bergmann challenges this notion. The basic purpose of technology from its first beginnings was to reduce or eliminate human labour. Until the early 1800s, 90 per cent of the population lived and worked on farms and did not have jobs at all in our sense (that is, work that someone else is willing and able to pay for). During the industrial revolution, machines replaced the need for all but 5 per cent of these. For a time most people found space in manufacturing but this phase was short-lived. Technology further encroached in the area of manufacturing so people moved again, into service industries. The question arises: what comes after services? It is not at all obvious that there is such another fourth category.²¹

In this post-industrial period where more than 50 per cent of the workforce is in service jobs we need to put to rest the presumption that 40 hours of every week for 45 years of everybody’s life should be filled by a job. The phenomenon of close to full-time employment was an aberration; it was a wasteful and cumbersome transition during the industrial period while technology developed and became mature. Now that technology has arrived service jobs are particularly

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¹⁹ Ibid., 9–10; see also Schor, Plenitude, 163–4.

²⁰ On the deskilling and dehumanising effects of work caused by the implementation of technology, see Miroslav Volf, Work in the Spirit: Toward a Theology of Work (Eugene, OR: Wipf and Stock, 2001).

²¹ Bergmann, ‘Future of Work’, 10–12; Schor, Plenitude, 163–4, raises an additional point that the market economy can no longer absorb jobs shed through the implementation of technology, due to the fact that we are now bumping up against planetary boundaries, meaning that there is no scope for growth as a way out of unemployment.
vulnerable. As people lose their jobs they are likely to forego many services, or at least perform these services themselves now they have more time.22

If Bergmann is right, then we could be confronted by a sudden drop in the demand for labour, reminiscent of the Great Depression, in which 30–40 per cent may be able to defend their jobs and 60–70 per cent may eventually be unemployed. A far more mutually beneficial approach, according to Bergmann, would be the cutting of every present job roughly in half, where one could progress from full time to a four day work week, and from there to perhaps three or two days of work each week. Other ways of halving work-time are to work on a six months on/six months off basis, or some other longer rotation period. In this way, jobs could be distributed and shared, there would be none unemployed, and everyone would have access to a certain amount of income.23

As Schor notes, the business as usual market, where job opportunities become more and more scarce due to the encroachment of technology, is becoming a losing proposition, especially over the long run. An intelligent response is to begin a shift out of the market and to cut losses by diversifying the ways to cover household needs.24 It could be that many households will find it necessary to adjust to one full-time or two part-time incomes in the future, thereby dropping back to a similar relative income prior to the recent dual-full-time-income-per-household period. This would lead to a lot more free time, but it will unavoidably also lead to a significant drop in net household income and the need to embrace frugality. Many will need to find alternate ways of providing for their needs, given a shortfall in income from the monetary economy. Homemaking seems to be the most promising way of providing for our food, clothing and shelter needs in light of reduced income and employment opportunities available in the business as usual economy.

The Personal-Psychological Argument

The third argument for rehabilitating homemaking hinges on the personal choice to cut back on participation in the current business as usual economy not primarily for ecological or economic reasons but rather with the idea that self-provisioning and working fewer hours could lead to greater happiness.

In many ways modern technology when applied in the business as usual economy has deprived humans of the kind of work that we enjoy most: creative and productive work that uses both hands and minds. Technology’s drive for ever increasing efficiencies has led to a division of labour which makes for

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23 Ibid., 15–18.
24 Schor, Plenitude, 111.
plenty of fragmented, joyless and boring work. Certainly, there has long been a certain amount of division in labour. In the 4th century BCE, Xenophon lauds the advantages of large cities where artisans have the luxury of being able to specialise in the various stages of shoemaking: one making his living merely by stitching shoes, the other by cutting them out, a third by shaping the upper leathers, and a fourth fitting them all together. However, there is still a sense that the contribution of the artisan in the large city, though specialised, was highly skilled, which is not generally the case today where the division of labour driven by machines tends towards mechanical activity and the loss of all the characteristics of art. As a result, the division of labour is alienating and cripples workers with devastating consequences for physical and mental health.

The business as usual economy is predicated on the idea that material affluence or wealth brings people happiness. A growing empirical literature challenges this assumption. In striving for extra money, most people need to work longer hours, and evidence shows that working longer hours leads to lower happiness. Tim Kasser and Kennon Sheldon show from four studies that once material needs are met a more powerful determiner for subjective wellbeing was time-affluence, that is, the time outside of paid work where people could engage in activities that promote personal growth, connection with others especially their families and friends and community involvement.

Time-affluence from paid work gives people the opportunity to participate in the more productive and creative work of homemaking. The more self-provisioning one can do, the less income one has to earn to produce an acceptable standard of living. Doing work in one’s own household is production, even if no wage is involved. Growing one’s own fruit and vegetables, sewing clothes and maintaining bicycles all have economic value, but more importantly they are enjoyable activities that can give people a sense of purpose in life.

28 Tim Kasser and Kennon M. Sheldon, ‘Time Affluence as a Path toward Personal Happiness and Ethical Business Practice: Empirical Evidence from Four Studies’, *Journal of Business Ethics* 84 (2009): 243–55. See also Schor, *Plenitude*, 105–7, who remarks on the unique American phenomenon in which, contrary to other similarly wealthy nations, the average annual hours worked per person actually increased between 1967 and 2006. Within this metric, employees with lower education attainment suffered more under- and unemployment, and those with higher education were more overworked.
How an Early Alexandrian Christian Tradition of Self-Sufficiency can Provide an Alternative Ethic for Participating in a Post-Growth Economy

One thing shared in common with the global-ecological, domestic-economic and personal-psychological arguments on the desirability of lessening our dependence on the business as usual economy by working less hours and devoting ourselves to self-provisioning for our basic needs is the inescapable fact that we will be less affluent. Schor sees the need for frugality and devotion to self-provisioning or homemaking as an interim and necessary expedient during a time of transition while we wean ourselves from the dirty business as usual economy and move to a green economy where new green technologies will open up new markets. Undoubtedly the opening of new green markets will occur to some extent, but it is unlikely that we could ever attain the same present level of consumption and affluence in a sustainable economy in the future primarily because we will no longer have recourse to cheap energy from fossil fuels, of which there is no comparable substitute. Therefore, we may need to embrace frugality as a permanent fixture of an energy-descent future.30

In this present time, the voluntary act of embracing frugality for ecological, economic or psychological reasons is counter-intuitive in the prevailing economic culture characterised by what Daly calls ‘growthmania’.31 The current values underpinning the development and use of technology in the free market economy include continual growth, self-interest, gain and ever increasing efficiencies. Clearly, different values or ethics need to be embraced and inculcated if we are going to embrace a process of de-growth to a sustainable and effectively stationary state of the economy.

This is not a new enterprise. In the mid nineteenth century, John Stuart Mill took to task his political economic predecessors like Adam Smith who, he insists, were overly fascinated with the moving state but neglected to explore the end goal of industrial progress for society. When this progress ceases, how will it leave humankind? Mill notes that the increase in wealth is not boundless, and that at the end of progression lies the stationary state. The best stationary state for human nature is that in which, while no one is poor, no one desires to be richer. No one needs to fear about being thrust back by the efforts of others pushing themselves forward. In this state there will be a better distribution of property, where an individual through prudence and frugality has access to the fruits of his or her own industry.32

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31 Daly, Ecological Economics, 18.
32 Mill, Political Economy, bk. 4.6.
However, there is a far more ancient tradition that may be of even greater use in providing the theological and philosophical grounds for ethics in a de-growth and stationary state. In the late second century, the Christian philosopher Clement of Alexandria set himself the task of convincing the wealthy elite of his city that salvation was still open to them, in spite of the rather hostile statements in the Gospels which seemed to point to the contrary, provided that they share their superfluous possessions with the needy and embrace moderation and a voluntary frugality. In doing this, he incorporated elements of the notion of self-sufficiency as understood in the major philosophical schools.

In Antiquity, Stoics, Peripatetics and Platonists all shared a basic framework for their ethical theories, according to which all questions of value fall under the basic question of what brings happiness (εὐδαιμονία) to humans. For Plato, happiness has to do with the harmony and virtue of the soul, while for Aristotle, happiness as a moral virtue is living between the extremes, living in virtue but still requiring externals. The earlier Stoics rejected Aristotle's understanding of externals, which they called indifferents, and claimed that happiness lay solely in living in accordance with virtue, which is the same as living in accordance with nature. According to the earlier Stoics, things which are morally indifferent, such as health, fame, wealth and strength, which neither promote nor hinder virtue, ought to have no bearing on the happiness of the wise person.

This rigorous position of the earlier Stoics did not go unchallenged even within their own school. Some saw that some indifferent things could contribute positively to happiness. Certainly, the wise person can be happy without good health or a good family, but these things can also be aids to his or her happiness. Zeno himself distinguished between ‘things preferred’ and ‘things to be rejected’. A person’s very constitution has its place among sensible objects and thus is necessarily composed of things diverse but not opposite: the body and the soul. Likewise, for Clement, the soul of the genuinely advanced Christian

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neither denigrates the body nor succumbs to its inordinate affections; rather, it acts virtuously using the body in the knowledge that God has created it good but nevertheless as a sojourner preparing for its departure.38

The notion of self-sufficiency (αὐτάρκεια) was important for most of the major philosophic schools. Platonists, Peripatetics, Stoics and especially the Cynics, all agreed that a happy person was self-sufficient, in possession of all the goods he or she needs for happiness.39 Exactly what this meant differed slightly. For Plato, the Good is perfect and lacks nothing, and so, ideally speaking, the person who has attained to the Good needs nothing else, not even friends.40 The Cynic Diogenes claimed that freedom of speech and freedom of action were the most important things in life.41 To be free, a person needs to be completely independent (αὐτάρκης) of his or her society with all of its trappings of money, conventions of marriage, socially acceptable behaviour and so on, and in order to be completely independent of society one has to reduce one’s needs to a minimum. All that the Cynic requires is food, shelter and clothing of the meanest sort; his or her psychological needs can be satisfied by virtue alone. Therefore, the Cynic has no desire for wealth, knowledge, pleasure or friendship.42 Later Cynics reacted against the extreme position of Diogenes. For both Bion of Borysthenes and Teles, αὐτάρκεια was not so much a stern renunciation of the world as an attempt to adapt to the world and changing circumstances just as an actor adapts himself to the various roles that he has to play. Self-sufficiency is synonymous with being satisfied with what is at hand. It is not a withdrawing into oneself but an acceptance of one’s circumstances and a concern to discover value in them.43

Characteristic of Cynic attitudes is their individualism; non-Cynic philosophers stressed the social dimension of self-sufficiency. The Pythagorean

39 See A.A. Long, Stoic Studies (Cambridge: Cambridge University Press, 1996), 183. Clement is aware of the opinions of the various philosophers on self-sufficiency. Hecataeus is said to have called αὐτάρκεια the chief end (Clement, Stromateis 2.21.130.5). Polemo, a disciple of Xenocrates, held the opinion that happiness is sufficiency in all good things, or of the most and greatest (Clement, Stromateis 2.22.133.7). Epicurus regards sufficiency as the greatest of all riches (Clement, Stromateis 6.2.24.8).
41 Diogenes Laertius. Lives of Eminent Philosophers, 6.69,71.
Ecphantus, in a tractate on kingship, describes the ideal king as the paragon of self-sufficiency. To be self-sufficient is to be like God: the king leads all things but is himself led by nothing. The ideal king is concerned with sharing, friendship and virtue, all of which stem from his self-sufficiency. He does not amass acquisitions for his personal service on account of any lack, but rather shares them with all.  

Clement’s understanding of self-sufficiency shares some traits with each of these sources and differs in others. He aligns himself with Plato and the Stoics in claiming that virtue is sufficient for happiness and that the happy person will be self-sufficient. The Saviour’s command: ‘Take no anxious thought about tomorrow’, signifies that a person who has devoted him- or herself to Christ ought to be self-sufficient so that he or she can be free and unimpeded to follow him. Self-sufficiency protects the psychological dimension of the believer against any threats from the irrational pleasures of the body and from the uncertainty concomitant with being a finite being. As such, it requires a person to reduce his or her needs. The passions, which would normally be inflamed from superfluous wealth, such as the constant desire for more wealth, are thereby bounded by living a life of self-sufficiency.

To live self-sufficiently involves distinguishing between necessities and superfluities. Clement held that one could use some external ‘goods’ and still be self-sufficient, exploiting, as did the Stoics, the subtle difference between use and need made possible by the ambiguity of the word χρεία. It was chiefly for humans that all things were made, yet that does not mean that it is ethically right to use all things, nor at all times. The occasion, time, mode and intention govern the ethical use of things, and invariably this means that people are to appropriate for themselves only the basic necessities for life. Although the whole of creation is ours to use, the universe is made for the sake of self-sufficiency, which anyone can acquire by a few necessary things. In this way, self-sufficiency becomes the means by which God extends his providence. That is, God provides just enough

44 Ibid., 134–5.
47 The gnostic (advanced Christian) is lord and master of him- or herself. He or she is moderate and passionless, unable to be disturbed by pleasures and pains (see Clement, Stromateis (in Clemens Alexandrinus III: Stromata VII, VIII, Excerpta ex Theodoto, Eclogae Propheticae, Quis Dives Salvetur, Fragmenta, (ed.) O. Stählin, 2nd rev. L. Früchtel and U. Treu, GCS 17. Berlin: Akademie Verlag, 1970), 7.11.67.8).
48 Clement, Paedagogus 2.1.16.4.
49 Rist, Stoic Philosophy, 8–9.
50 Clement, Stromateis 4.26.163.1–2; Paedagogus 2.1.14.3–5. See 1 Cor. 10.23.
51 Clement, Paedagogus 2.3.38–9.
to meet everyone’s needs. No one should be poor provided that people are not greedy and appropriate more than what is necessary.\footnote{Clement, \textit{Paedagogus} 2.1.14.5.}

In addressing the problem of the wealthy, Clement mines and adapts ideas from the philosophical schools to construct a Christian understanding of self-sufficiency, which he insists is the key to happiness. Rather than living a self-centred lifestyle of unbridled consumption, the wealthy are presented with an alternative path that involves contentment with few necessary things, in essence, a voluntary frugality. Instead of hoarding gold, wearing rich, gaudy clothes and hosting opulent feasts, people can imitate God in having few needs and focusing on supporting others, thereby cultivating true friendships.\footnote{Gormley-O’Brien, ‘Live the Good Life’, 95–8.}

**How Self-Sufficiency Informs the Way we Choose Technology in Homemaking in a Post-Growth Economy**

It is necessary for those hastening towards salvation to anticipate beforehand that everything we possess is for use, and the use is for the sake of self-sufficiency, which one may attain by a few things.\footnote{Clement, \textit{Paedagogus} 2.3.39.1}

In the quest for self-sufficiency in the future we need to develop and adopt suitable technologies that address basic consumption needs – food, transport, energy, clothing, furniture and so on – so that people can reduce their dependence on the market economy by cutting back their work hours and providing for their needs through homemaking.

When discussing technology, it is pertinent to distinguish between a tool and a machine. In some cases there may be a degree of ambiguity but generally speaking a tool transmits the activity of the worker to an object, that is, the worker remains the primary agent of production. In machine production the machine is the primary agent of production; the worker tends but does not use the machine.\footnote{Volf, \textit{Work in the Spirit}, 31–3.} Ecological realities and rising transport costs will undoubtedly drive bigger centralised production towards smaller-scale, more localised production.\footnote{Schor, \textit{Plenitude}, 125.} The rehabilitation of homemaking will therefore also involve a reversal of the three stages of manufacture from craftsman to machine operator to machine overseer, which occurred in the agricultural, industrial and post-industrial ages respectively.\footnote{Volf, \textit{Work in the Spirit}, 3–31.} That is to say that in many cases there will be a

preference for a tool over a machine, and for the homemaker to develop skills as a craftsman in using tools.

This does not mean that other simple and robust technologies will not be useful in supporting homemaking in an energy-descent future. In suburban areas, it would make good sense to apply permaculture principles to food growing where, by careful selection and placement of animals and plants, the waste from one becomes the fertiliser for the next; the yield for a smallholding can be substantially higher than using conventional systems. This will involve a progressive ruralisation of our suburbs, focusing locally on the biological needs and functions of food supply, water and nutrient recycling. Such ruralisation will require the releasing of more public land for commons and garden allotments and foodscapes.58

The homemaker of the present and future will choose tools based on the ethical values inherent in self-sufficiency, namely, utility and frugality, rather than convenience and extravagance, using the following principles:

1. Tools that are durable: a sustainable economy that is in a stationary state requires that production rates of goods should equal depreciation rates. Lower rates are more desirable for the sake of greater sustainability. Therefore, longer-lived, more durable products can be replaced more slowly, thereby requiring lower rates of resource use.59 An example of this is our treadle-powered Singer sewing machine from the 1930s on which my wife does most of her sewing and makes many of our clothes. The spare parts are readily available online and the machine (properly the tool according to our definition above), besides being a technical work of art, is far superior to the modern electric computer guided machines (properly the machine according to our definition above) in terms of its stitching and the capacity for the worker to fine-tune its operation by hand.

2. Tools that are repairable and maintainable: extending a tool’s life through regular maintenance and reparations tends to make it more sustainable and less expensive in the long run in spite of the fact that it may entail paying more up front.60 This principle also implies that the tool be simple in construction so that the average skilled homemaker is able to maintain it him- or herself. An example of this is the choice of a scythe over an electric or petrol-powered brush cutter or lawn mower. A well-made scythe will last a lifetime, provided the user maintains it regularly with frequent honing and peening. It also provides an excellent and not over-taxing form of exercise for the worker.

58 Holmgren, *Retrofitting the Suburbs*, 2.
59 Daly, *Ecological Economics*, 12.
60 Schor, *Plenitude*, 130.
3. Tools that are multifunctional: Clement alludes to this principle directly when he encourages believers to possess inexpensive (i.e., non-ostentatious) utensils that are multifunctional so that a variety of things may be done away with.\(^{61}\) This principle can also be applied in urban homemaking through a collectivist approach of sharing tools between neighbours. Instead of each household purchasing a full complement of spanners, screwdrivers, saws, planes, hammers, cars, bicycles, sewing machines and so on, for its own use, a system of sharing could be put in place where a number of households share the use of the tools, thereby reducing the total number of tools required and also encouraging the acquisition of higher quality and possibly slightly more expensive tools that are in line with principles 1 and 2 above.

It would be understandable for the reader to infer that self-sufficiency, as we have defined it, is anti-materialistic. However, in reality, it is our consumerist culture that reflects an anti-materialism, where fashionable clothes can be bought by the kilogram, a cheap Chinese-made spanner can easily be replaced by another when it breaks, and cars can be turned over on a yearly basis. In contrast, self-sufficiency leads to a higher materialism, where tools are appreciated for their beauty in utility and simplicity.\(^ {62}\) These tools are often works of art and are looked after with tender care over a period of many years, sometimes a lifetime, by homemakers, for upon such tools they know their quest for happiness through self-provisioning is dependent.

\(^{61}\) Clement, *Paedagogus* 2.3.36.3. See also Schor, *Plenitude*, 131.