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RESEARCH ARTICLE

The kitchen's grip: Energy, cooking, and gendered work in rural France (1860–1960)

Martin Bruegel

INRAE-Centre Maurice Halbwachs, Paris, France
Email: Martin.Bruegel@inrae.fr

Abstract

Drawing on a 1936 ethnographic enquiry and specialised literature, including magazines on domestic appliances and rural life, this article examines how wood, coal, bottled gas, and electricity coexisted – rather than replaced one another – in rural French households from the 1860s to the 1950s. New fuels and kitchen technologies were layered onto existing practices, which required farm women to juggle multiple energy sources and cooking tools across seasons. Cast-iron stoves and portable cookers, acquired according to economic (wealth, occupation), environmental (deforestation, proximity to mines), and geographic (latitude, altitude) constraints, reduced the need for constant fire monitoring and reshaped domestic labour. They facilitated more complex cooking and freed up time – only for it to be consumed by multitasking across expanded household and agricultural duties. The study challenges linear narratives of technological progress, foregrounds addition over substitution, and asks who truly benefited from these innovations – and at what cost.

It was a response no one in the Paris office of the *Encyclopédie française* had anticipated. In 1936, its executive committee, led by the distinguished historian Lucien Febvre (1878–1956), launched a 'collective enquiry into popular food habits' to document the transformation of everyday experience in the countryside. A four-page aide-mémoire guided a network of voluntary primary school teachers and local dignitaries, including the occasional physician or priest, in the collection of information on the preparation, preservation, and consumption of food, in roughly 260 small communities across France.[1] Two conflicting impulses drove the *Encyclopédie's* intellectual project. On the one hand, there was a whiff of melancholy as France's population had glided into an urban majority in the 1920s, so much so that the survey seemed to probe a vanishing way of life. On the other hand, it embraced a vision of progress, with optimism about modernity infusing some of its questions. The ambivalence breathed a certain urgency into the initiative. The organisers hoped an analysis of quotidian routines would offer tools to better understand contemporary society.[2] The results turned out to be more complex.

Testimony from Montirat, a village of barely 900 inhabitants near Albi in the rural South, tempered the tension between a nostalgic longing for the past and a confident embrace of the future by shedding light on an everyday activity: cooking. The report noted:

> 'Few families rely exclusively on the open hearth to cook their food. Most use wood or coal stoves. Small gasoline cookers and even butane gas cylinders appear here and there. They save time, especially in the summer, and are comfortable and easy to handle. They have,

> however, no effect on women's occupations. The instant flame may well allow the rapid preparation of the meal, suggesting an escape for wives from kitchen slavery. But she remains the stove's eternal bride'.[3]

The report was down-to-earth and pragmatic. It neither romanticised nor celebrated new technology. Its very realism prevented it from dovetailing with an opinion peddled by advertising narratives that promoted household appliances as tools of women's emancipation from domestic labour.[4] And yet, folklorist André Varagnac (1894–1983), who managed the enquiry, argued in 1943 that 'new household technology relying on instant ignition and the permanent availability of energy contributes to women's liberation'. Febvre, ever inclined to stress the importance of 'humble objects' in his 1954 preface to the *Encyclopédie*'s volume on 'Everyday Civilization', also echoed the perspective that modern utensils alleviated women's domestic chores, even though evidence from the survey indicated that technical progress did not *ipso facto* generate social change.[5] The discrepancy raises an intriguing question: how could established scholars misinterpret the relationship between technological advancements and women's roles in society? While this issue has been explored by historians like Ruth Schwartz Cowan, who demonstrated that innovations often became 'more work for mother' by raising household expectations,[6] it remains secondary here. Instead, the 1936 survey presents a unique opportunity to retrieve overlooked cooking practices and to examine how they fit into domestic life in rural France, where agriculture was the defining economic sector. This exploration offers insight into a transformative period when traditional fuels such as wood and coal coexisted with newer instant-heat sources like butane and modern utilities like electricity, the mix of which affected the allocation of labour to housework (cooking, but also cleaning), care for others, and production (for own consumption or market).[7]

The 1936 ethnographic enquiry into food practices presents a ground-level perspective on issues typically examined from a top-down, bird's-eye view. The guidance sheet provided to the amateur field researchers listed numerous aspects of food habits in farming households: the organisation of food consumption (meal times, seasonal variations, locations, social hierarchy observed at the table, and utensils); the evolution of food repertoires (staple foods and their origins, typical preparations, the role of meat, supplementary foods, innovations, and beverages); food preservation methods; cooking (energy sources, equipment, and techniques); and finally, foreign influences (immigration and wars) on culinary routines. Each section suggested 'observations to be made, remarks to be recorded'. The vade-mecum encouraged observers to 'carefully examine the various repercussions of a new technique and the changes it brings to women's activities'.[8] The campaign generated roughly 2,250 pages of mostly handwritten, sometimes typed, occasionally illustrated responses, densely packed with information that aligned with the goals of the enquiry's designers, who aimed for an encompassing portrayal of everyday eating in rural France. These documents have inspired only three systematic studies – on cooking fats, the evolution of the peasant food repertoire, and food preservation.[9] None has explored the question of energy.

The grassroots angle enriches the study of material culture, where large-scale factors – rising wealth, improvements in transportation and commerce, and the spread of urban behavioural models to rural areas by state officials or seasonal migration – often overshadow individual agency.[10] It complements broader analyses of energy consumption that focus on power networks, distribution grids and marketing, areas that, as historian Bouvier has pointed out, frequently neglect the hesitations, actions and adaptations of end users.[11] While the literature on energy transitions discusses changes in supply,[12] it often overlooks consumers who, as the observers in Montirat so keenly highlighted, were adept at juggling various fuels – both traditional and modern – to meet their cooking needs. The user-oriented approach shifts the focus from overarching systems to everyday practices to uncover the ways in which rural residents utilised different fuels and utensils to prepare family meals and the factors behind their choices.

Provincial France between the 1860s, when cast-iron stoves began to appear in the countryside, and the 1960s with their nationally concerted impulse towards networks delivering gas and

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electricity, offers a useful framework for what sociologist Miriam Glucksmann calls the 'total social organisation of labour approach'.[13] While industrial work and the shopfloor dominate such studies, the following pages zero in on the kitchen and household labour to explore the relationships between people's domestic work practices, the tools they use to accomplish these tasks, and – in our case – the resources needed to generate the heat that transforms raw into cooked foods. The hearth thus appears as a nodal point – or the consumption junction[14] – where technological infrastructures enable, but also constrain, the daily cooking routine, a theme explored in Part 1. Part 2 centres on the fuels themselves, tracking their expansion, decline, and combination. Part 3 considers how changes in cooking technology affected the preparation of food in the French countryside.

Focusing on domestic food preparation brings women distinctly into view, foregrounding not only their role in the household's division of labour but also their crucial contributions to fuel management – a topic largely neglected in historical scholarship on energy.[15] Women combined utilities, domestic appliances, and raw materials to put food on the table. Men's contributions largely revolved around providing firewood. Although historians have extensively analysed technology's influence on women's domestic activities, the gendered perspective has only recently begun to inform historical (as opposed to development) studies of energy consumption. Investigations in Canada and the United States have of late made ingenuous use of advertisements and advice books to uncover gender roles and to explain neophobia toward new energy sources *via* as-of-yet untamed risks they brought into the home: fires set off by electric short-circuit or leaking gas, for example.[16] The 1936 survey goes beyond such literary evidence by adding the everyday practices of rural residents to our understanding of how resources, tools, and knowledge intersected in kitchen work. The analysis serves as a test case, shedding light on how women – described by sociologist Edgar Morin as the 'secret agents of modernity'[17] – domesticated innovations between 1860 and 1960 that helped transform a daily activity central to their role while leaving their position in the household unchanged.

The heat of change: transforming French kitchens from fireplace to stove

The desire to improve energy efficiency drove the development of cook-stoves by concentrating the heat source within an enclosed combustion chamber, which superseded the traditional open hearth.[18] Early designs took time to fully emancipate themselves from the fireplace. In the 18th century, the French Academy of Science reviewed blueprints of portable stoves whose purpose was to save energy while cooking several dishes at once.[19] The major breakthrough came with Benjamin Thompson, later known as Count Rumford (1753–1814), who designed a sturdy iron range around a fireplace to provide hot soup for the inmates of a Munich poorhouse. He also devised a portable stove for single-pot use. The compact Oberlin model applied very similar principles, right down to its fireplace mimicking low cooking surface. It received its US patent in 1834. American inventors sought to enhance efficacy and comfort. Design improvements focused on sparing cooks from the need to stoop while handling a growing array of cookware, including saucepans, frying pans, and casseroles. Eventually, the waist-high stovetop authorised an upright position in front of cooking holes with iron gratings. They, in turn, improved thermal efficiency (and maybe the cook's back health).

By 1860, when the first 'American' cast-iron stoves arrived in continental Europe, more than 800 patents had been filed to upgrade various components such as flues, grates but also hot-water reservoirs.[20] The French market offered hundreds of stove models. The best-known types came from the factory of the utopian entrepreneur Jean-Baptiste Godin (1817–1888) in Guise, about 100 miles northeast of Paris. Smaller manufacturers responded to regional demands. In Northern France, the 'Flemish stove' became particularly popular, while in Eastern regions, ranges produced in Fallon (Haute-Saône) competed with locally made models from places like Saint-Dié (Vosges).[21] Industry-wide standards set the countertop height at 34 inches in the 1930s, an

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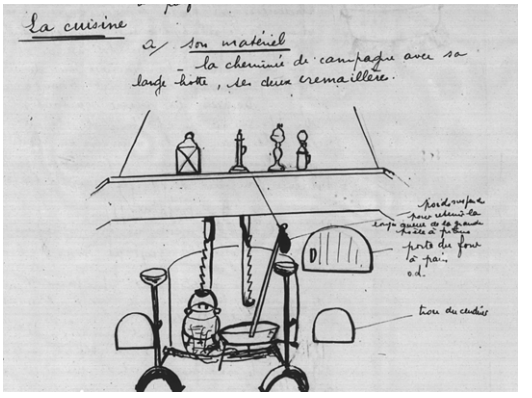
adjustment noted as an improvement in comfort by the 1936 report from Sauvignargues, a village of roughly 400 inhabitants in the Gard.[22] After World War II, the standard height increased to 36 inches, reflecting the rise in average women's height and revealing engineers' assumptions about physical ease in household chores. Advice literature then recommended that prospective consumers pay attention to the height of kitchen equipment.[23]



Ill. 1: Open fireplace. Note that cooking on an open range necessitated precise coordination, involving the careful positioning and timing of pots and pans relative to the open flame. One report called it 'an art to manage fire and utensils.' Drawing by primary school teacher Marie-Thérèse Soulat.

Source: CRC 3.102, Chéronnac, Haute-Vienne (1936); CRC 3.162, Ambernac, Charente (1936).

The shift from open fireplaces (see Ill. 1) to enclosed stoves represented a major development in cooking technology. Relying predominantly on solid fuels, cast-iron stoves that burned wood and coal reached their peak popularity in the second half of the 19th century. Although gas and electricity were gradually introduced to urban households, the situation in rural France was markedly different. There, energy utilities provided limited services, and while electrification was well underway by the 1930s, the available amperage was sufficient only for lighting, not for powering larger kitchen appliances.

The pace of adoption of cast-iron stoves varied significantly by region. The general outline, exemplified in Condat-en-Combraille, a village of about 950 inhabitants in the Puy-de-Dôme, included three major steps: the open fireplace was the starting point, allowing wood of every kind and in almost all forms to be burned as it accommodated logs of many sizes; then came the small cast-iron stoves (*poêle*) whose primary purpose was to improve the efficiency in heating the live-in kitchen while its adventitious benefit turned out to be its top where to cook one-pot meals or heat water; the arrival of two-hole cast-iron stoves inaugurated the third phase, completed when they yielded to kitchen ranges with four firing spots and often a reservoir for hot water added to the top or stitched to the side.[24] However, progress was not as smooth as it might seem.

Context mattered. While some regions quickly adopted modern stoves, others clung to traditional open fireplaces. These pockets of 'archaism', as field notes from places like La Bussière-Aupigny (Haute-Vienne) described, persisted well into the 1930s and, in some cases, even after World War II.[25] Fourastié, in his account of modernisation running from the mid-1940s through the mid-1970s, emphasised backwardness in drawing attention to the presence of open fireplaces in 150 households out of 163 in his sample village located in the rural Southwest in 1945, the threshold of the period for which he coined the label 'thirty glorious years.'[26] Elsewhere, early

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adopters introduced new cooking ranges by the 1860s and 1870s. The 'use of cast-iron stoves (. . .) dates back 70 or 80 years and can be explained by the rigorous winter climate', stated the 1936 reports from villages in the Jura mountains, where their dual role in cooking meals and heating kitchens was a crucial advantage. Meanwhile, in the more clement climate of the Department of the Gard, owning a stove before 1914 was an exception.[27]

Perhaps predictably, many of the *Encyclopédie's* canvassers placed the major shift in the ownership of cast-iron ranges in the immediate post-war years. They attributed it to the widespread push for modernisation to overcome the hardships and deprivations endured during the hostilities.[28] A 'before-and-after' narrative emerged in places like Brunembert (Pas-de-Calais), a village with around 80 houses and 300 residents. According to local research, kitchen equipment remained 'primitive' up until World War I, but by the 1930s, nearly half of the households had acquired a Flemish cast-iron stove equipped with an oven and a boiler.[29] The massive study of Plozévet in Brittany confirmed the chronology: the 1930s represented indeed 73% of the acquisition of stoves by agricultural households.[30] The national policy of post-war reconstruction helps explain the push toward a renewal of kitchen arrangements, and the general prosperity was a key factor in encouraging rural households to acquire new appliances in the mid-1920s. But if the national commitment to the rebuilding of housing and infrastructures underpinned home improvement, the on-site observers added a subjective motivation. The rural population, they said, sought creature comfort in the aftermath of the Great War.[31]

Climate, policy, and social factors all contributed to stove adoption and usage. Kitchen ranges were expensive. Economic status, closely tied to occupation, played a significant role in determining who could afford cast-iron stoves. In wealthier areas, such as the Aude, Haute-Loire, and Touraine regions, the more prosperous peasants were often the first to invest in these new appliances. In contrast, in poorer departments like the Creuse, financial limitations slowed the spread of stoves. In Plozévet, non-agricultural households adopted new kitchen equipment in the 1920s, about a decade before their farming neighbours. An environmental factor mitigated the dynamic of a stove acquisition without, however, altering the effect of affluence. Indeed, the availability or, on the contrary, the progressive inaccessibility of wood affected the timing of the diffusion of both, cast-iron stoves and coal. However, they did not modify the social dynamic of ownership as the new combination found its first use in public places that welcomed customers (inns, grocers) before it entered better-off private households where they became default solutions when shortage of wood reduced the fireplace's utility.[32]

While the stove represented a pivotal advancement in large cooking technology, changes also took place with smaller kitchen appliances on the margins. Mobile devices began to complement larger equipment. Small meant useful. Portable spirit-fuelled cookers became more common in the 1920s, followed by bottled liquefied gas cookers, which began reaching rural households by 1932. Wiring, originally intended to power light bulbs, furnished enough energy to heat a hotplate or a kettle.[33] These appliances reached high temperatures rapidly but their energy-intensive nature made them costly to operate.[34] Furthermore, the downside of the compact size of these appliances made them ill-suited, as a 1936 report from Castelnau-Montratier (Lot) specified, for fulfilling the substantial dietary needs of a farm.[35] Modest in size but fast in heating, they were above all tools designed to quickly cook or warm small quantities of food or beverages, ultimately saving time.

Rural households adapted their spaces to accommodate modern equipment in sometimes startling new kitchen layouts. Drawings and descriptions specified such spatial modifications.[36] They show that the most intuitive spot to install the stove was in the fireplace itself. In Saint-Front (Haute-Loire), 'the stove, of all shapes and sizes, accompanied by its inseparable, large kettle for cooking the pigs' swill, slowly came to rest under the vast mantel of the fireplace. The remaining space accommodates the kindling wood.'[37] However, this nesting solution foreclosed the hearth's continuous use, so much so that a second option consisted in placing the two heat sources next to each other (see Ill. 2).

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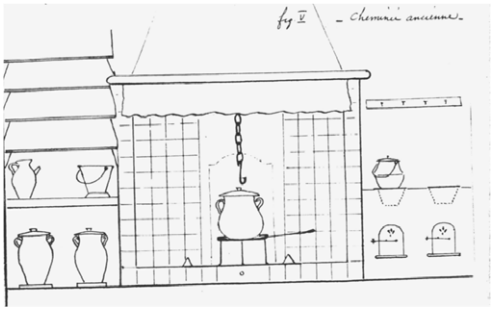
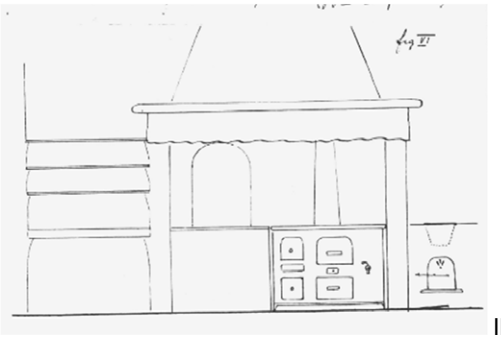
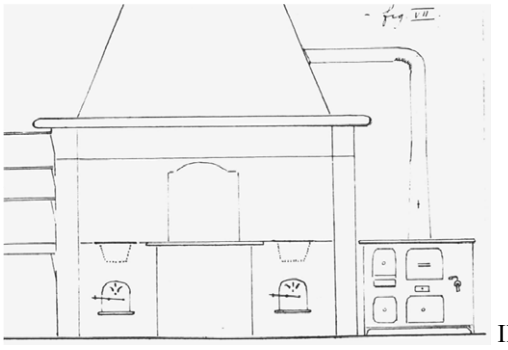
Ill. 2. The evolution of cooking spots



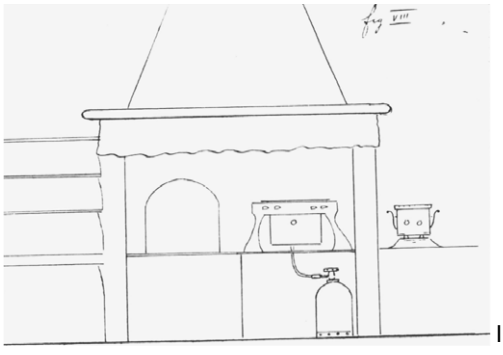
Ill. 2.1. Open fireplace



Ill. 2.2. The stove in the fireplace



Ill. 2.3. The stove next to the fireplace



Ill. 2.4. Cooker running on bottled gas in the fireplace

Source: CRC3.275, Le Cailar, Gard (1936). Drawings by primary school teacher Louis Pasquier.

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Finally, material and architectural changes reshaped work practices. The introduction of cast-iron stoves altered the nature of domestic tasks. While women took on new responsibilities, such as cleaning and maintaining stoves, these appliances also reduced the need for constant fire-tending. To be sure, upkeep was laborious, requiring routine polishing (or 'blacking') to prevent rust.[38] Likewise, smaller appliances, though improving certain aspects of food preparation, introduced maintenance tasks due to their fragility and occasional malfunctions. Yet, users adapted through experience, aided by advice from distributors who travelled the countryside delivering coal, bottled gas, and guidance.[39]

Energy choreographies: navigating resources and household dynamics

Fireplaces, stoves, hotplates, and cookers relied on a variety of fuels. Over time, the supply mix expanded, incorporating new energy sources while retaining older ones. Bottled gas was introduced in 1932. Low-tension electricity gained ground in the countryside in the 1920s. Coal emerged as a significant fuel in the latter half of the 19th century, coinciding with the advent of cast-iron ranges. Wood, however, remained the mainstay fuel in rural France or, as the monthly publication *Agriculture pratique* affirmed as late as 1952, 'wood is the veritable combustible in the countryside'.[40] The intricate choreography of energy sources showcases the adaptability of rural communities in the face of changing technological and environmental conditions.

The ubiquity of wood was both a blessing and a curse. Its abundance and low cost, secured through private or communal ownership, often dissuaded men from switching to alternatives. The availability of nearby wood, as one observer noted, encouraged its exclusive use. Consuming timber was a necessary act of destruction.[41] 'In certain regions before the war, firewood', a forestry engineer said in 1945, 'had not only no [commercial] value, but even a negative value'. Indeed, the labour required to remove wood often surpassed its market value; burning it helped recover some of that expense in time and effort.[42] It is, incidentally, interesting to note that energy self-sufficiency on the farm was not pursued as an end in itself but rather as a balancing act. The farmers' careful approach to wood management demonstrates that its attainment required navigating a delicate equation of practical needs, contextual priorities, and the inherent constraints with the available resources (such as their abundance or renewal rate).

Several factors affected the opportunity cost of consuming wood. The abundance of forests explained the reason why the Jura mountains continued to rely on wood to the point of, at times, holding on to open fireplaces where to burn logs without a sliver of thought given to fuel economy.[43] Despite initial interest in cast-iron stoves, the easy availability of timber in the rural hinterland of coastal cities Saint-Malo and Cherbourg hindered the adoption of inexpensive British coal there throughout the 19th century.[44] All over France, wine growers gathered shoots and branches to start 'vivid' fires beneath their cauldrons, and then stoked the flames with old vine stumps. The practice persisted, albeit with stoves, into the 1960s in the Hérault department; it remained the most effective way to extract use value from otherwise discarded yet cumbersome wood, the ashes of which could be spread in the vegetable garden or used for washing. Additionally, the heat provided financial savings by reducing the need to purchase bottled gas.[45]

The integration of new combustibles was not without its relational strains. It spawned discussions in the household. They, in turn, revealed material constraints and exposed the power dynamics between the sexes. In 1936, one farmer confronted with his spouse's desire for new kitchen equipment, retorted, 'what am I going to do with the wood that's piled up under our shed? What am I going to do with the wood that's going to be cut? We have to prune trees and hedges and also make good use of the fallen branches and trees'. Undoubtedly, harvesting, shaping, transporting, sawing, and splitting lumber were time-consuming albeit key operations. But their execution happened during winter when the fields lay fallow and farm labourers were readily on hand to execute these not-altogether easy tasks (note, however, that there is evidence of women

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collecting dead wood for domestic purposes).[46] The decision pitted considerations of cost and convenience against each other. It could prioritise either the family enterprise and men's roles or the demands of household activities and women's labour. Over time, solutions shifted in response to changing circumstances. As deforestation curbed the supply of wood, the pursuit of alternative fuel sources gained traction. The purchase of coal – and stoves – then proved apropos.[47] Yet, this pattern could also operate in reverse. When bottled gas arrived in Plozévet, Brittany, in the 1950s, farmers began to neglect hedges and embankments, once vital sources of firewood. This disregard ultimately led to their removal as part of a land consolidation effort, or *remembrement*, aimed at paving the way for more intensive agriculture. The shift resulted in a significant loss of biodiversity.[48]

Geographic proximity to mines boosted the turn to coal and prompted the necessary acquisition of a stove to accommodate the shift. In the department of the Nord, a correspondent for *L'Encyclopédie* noted, 'the depletion of fuel resources (the country has been completely deforested) and the nearby coal mines meant that this method of heating and cooking [the use of wood] was abandoned some time ago'. The same observation applied in the neighbouring Pas-de-Calais department, where, according to historian Ronald Hubscher, coal was the primary fuel and cast-iron stoves were the norm already around 1900.[49] In the centrally located Puy-de-Dôme, peasant miners benefited from free access to coal residues (slag, schlamms) with low calorific value. The switch to coal consumption was facilitated by the establishment of distribution networks. Smaller cities acted as nodes, and trucks delivered coal to nearby farms. This increased its accessibility and encouraged greater use.[50]

In practice, households often utilised both fuels, but not at the same time. Seasonal variations and the time of the day influenced their usage patterns. The fireplace relied solely on wood, while cast-iron stoves were capable of consuming both wood and coal. Manufacturers even developed hybrid stoves designed to burn both fuels. (The *Encyclopédie*'s survey recorded four households with a wood-coal combination stove.)[51] Regardless of the system in place, the two solid fuels complemented one another: wood for summer and winter, and coal for winter.[52] The preference stemmed from the fire's life cycle. Coal, although slower to ignite, produces more heat over a longer duration than wood, making it particularly suitable for heating kitchens during colder months. Achieving similar heat levels with wood required constant monitoring.

Coal demanded less supervision, which further reinforced its appeal. It literally provided space for the wife. A commentary from Castres (Tarn) succinctly articulated this sentiment: 'It's not the economy but convenience that convinces the peasant to use the cast-iron stove and coal. This leaves the housewife free to look after the birds in the barnyard or mend the household linen. She no longer has to keep a constant eye on the fire in front of which the soup was cooking. When the stove is lined with coal, she can attend to other tasks'.[53] Coal's use for cooking was commonplace across continents and countries, and wherever it was adopted, it came with an externality: it augmented women's multitasking in the household.[54]

The gradual adoption of coal brought significant changes not just in cooking technology but also in the distribution of household tasks. With the slow, steady warmth of the coal fire taking care of the cooking, women were free to juggle other farm chores. Versatility proved an essential daily skill. However, the expanded repertoire of charges should not obscure the simultaneous intensification of women's work attendant on the management of the coal chain. On the one hand, stoves required logs to be cut and split to size. 'Shaping, transporting and sawing wood are operations that represent a major waste of time for the farmer', *L'Agriculture pratique* wrote in 1950, 'and a continual and tiring chore for the farmer's wife'. By 1936, farmers increasingly hired itinerant woodcutters equipped with gasoline-powered saws to prepare the timber. Thus, commerce eased the burden on men while the reliance on coal intensified women's tasks. Indeed, the clean-up of coal's significant residues remained among their duties. Coal ashes are heavier than those from wood and offer fewer, if any benefits, as they cannot be used for washing clothes or fertilising vegetable plots. Removing these waste materials was imperative; otherwise, the fire

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would not have started.[55] In short, the use of coal intensified some stove-related tasks and also helped shift their attention to other domestic responsibilities.

Seasonal rhythms played a pivotal role in determining cooking methods, influencing the transition between different appliances. During summer, utilising the fireplace allowed heat to escape through the chimney, preventing oppressive indoor temperatures. Carefully managed embers were often transferred from the fire to fuel small stone stoves, such as the 'potager' – often carved in windowsills or built from tiles – or a portable 'campagnard' (made of tiles). These devices were designed to simmer one-pot meals or keep dishes warm during the day when the housewife was away from the kitchen. During winter, the ability of the cast-iron stove to cook meals while simultaneously heating the kitchen became especially beneficial.[56] Thus, the shift from one cooking appliance to another was not abrupt; rather, their uses overlapped for a significant period. This seasonal alternation eased the impact of technological change, enabling users to preserve familiar practices while adapting to new culinary technologies. It helped housewives to get used to the complexities of cooking with different fuels and technologies, and so reduced the resistance to change that often accompanies innovations. It also imposed the dual burden of managing – and stocking – two solid combustibles.

While wood and coal were the primary fuels in rural households through the 1960s, change happened at the margins of culinary practices. These developments were no less momentous. In areas where wires transported only low currents and no pipes delivered gas, portable resources began to emerge. Minor power sources fuelled smaller, compact cookers. In the 19th century, alcohol and gasoline were used to heat portable stoves which were poised for a bright future as outdoor devices and army field cookers. However, their adoption was uneven across regions. Reports indicate that these portable cookers were more common in the warmer South, where open fireplaces remained in use longer than in the colder North, where cast-iron stoves kept the coffee pot warm.[57]

The advent of electricity and butane in the post-World War I years sparked fresh kitchen practices. The primary advantage of the recently designed, compact equipment lay in its exceptional cooking speed, which allowed for rapid preparation of foods and beverages. Electric kettles, the report from the environs of Valence (Drôme) noted, 'have made their appearance and are invaluable utensils for heating coffee or boiling water for herbal tea'.[58] Meanwhile, liquefied petroleum gas, a non-toxic byproduct of petroleum refining compressed and stored in cylinders weighing a substantial 25 kilograms (about 55 lbs.), gained traction as a viable alternative to traditional fuels in the 1930s. Advertising campaigns for *Butagaz* in France heralded it as 'the gas that travels' and boasted its capacity to deliver, *via* its portability and convenience, 'urban comfort to the countryside'. With four thousand depots established across France, the distribution grid mirrored that of coal supply chains; facilities in a network of cities supplied the surrounding areas.[59]

Butane offered a solution to time constraints in farming households, particularly during the busy summer months. However, its adoption was uneven. Observations from Elbeuf-en-Bray (Seine-Inférieure), a village of 350 inhabitants, reveal both enthusiasm for gas and apprehension about its newness – a sentiment echoed globally, even in supposedly forward-thinking countries like the United States.[60] Despite extensive publicity and door-to-door promotions, progress varied significantly, as aggressive marketing faced the challenge of limited budgets. High costs posed a significant barrier, and by 1938 wood was estimated to be one-eighth the price of butane per heat unit. Consequently, reports indicated that gas cookers were predominantly found in wealthier households, with affluent peasants and urban vacationers in Vigan (Gard) as early adopters, while middle- and upper-middle-class professionals – 'physicians, pharmacists, large proprietors, and school teachers' – owned these new technologies in the neighbouring Hérault department.[61] It appeared that age played a role in the openness to change, as younger households were more eager to incorporate bottled gas into their kitchens.[62]

In summary, then, these recent fast-cooking appliances were not merely extensions of the traditional 'potager' or 'campagnard', which allowed for slow cooking or 'simmering' over embers.

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They contributed to reducing cooking times while avoiding the lengthy process of igniting wood for a fire or coal for heating a stovetop. They did reduce the consumption of wood and coal. However, their use was costly, and their surface area was limited, which restricted their thermal output. As a result, as one observer noted, they were largely confined to single tasks – such as heating water for morning coffee – and occasionally found use on small farms with modest demands.[63]

For over a century, from approximately 1850 to the years following World War II, rural communities skilfully balanced diverse energy sources. This delicate orchestration of time and resources predominantly fell to women homemakers who steered the rhythms of domestic life: they developed seasonal patterns of energy use; they adapted their practices to align with both the climate and the demands of daily labour. While the magazine *Agriculture nouvelle* lamented in 1926 that 'rural housewives are often obliged to light their stoves to prepare their meals, wasting wood or coal to turn their kitchens into steam rooms when it's often 35 degrees [Celsius] outside in the shade', these women employed techniques such as managing embers to maintain warmth and efficiency. By the interwar years, they adopted smaller, portable devices powered by new energy sources that they integrated into established routines. As an observer from the *Encyclopédie*'s enquiry noted, 'the economy of time and the economy of fuel' went hand in hand on the farm.[64] The rural kitchen was not merely a site of thrift but a domain of ingenuity and adaptability. The careful management of resources – balancing warmth, fuels, and time – integrated novelty into longstanding practices. The choreographed use of multiple energy sources was both an economic necessity and a cultural practice. Women ensured that household work and agricultural cycles remained in harmony. The balance of managing various energy sources also catalysed changes in cooking practices and shaped what, when, and how meals were prepared.

Cooking up change

The shifts in cooking technology from 1860 to 1960 transformed the intensity, scope, and duration of cooking tasks. While innovations reshaped culinary practices and even their set-up, they did not fundamentally alter the domestic balance of work. New appliances and techniques affected the intensity of cooking, and they sometimes made tasks easier to complete. The expanded range of technologies made it possible to create more elaborate dishes beyond the traditional repertoire, though the greater variety of ingredients and increased complexity often demanded additional preparation time. Although coal stoves did not significantly reduce cooking times, their steady, consistent heat freed women from the continuous tending required by wood fires. As noted in the 1936 report from Foëcy (Cher), 'while a small minority still burns wood in their stoves, most now use coal, which is far more practical in every way. The cook no longer needs to constantly monitor the fire and the food she is preparing. After starting up, she can get on with other tasks'. The simultaneous pursuit of several activities characterised women's daily routines.[65]

According to an informant cited in the *Encyclopédie*, farm women spent about a third of their time in the kitchen while the magazine *Agriculture Nouvelle* estimated in 1928 that each meal took around two hours to prepare. This pattern saw little change into the post-World War II era, when farm wives worked over twelve hours a day year-round, splitting their time almost equally between indoor and outdoor tasks. Yet, while their long workdays were significant, what stood out even more was their constant motion – darting from one chore to the next and seamlessly juggling multiple responsibilities at once. The dynamic reality reveals the limitations inherent in discrete categories – cooking, eating, dishwashing, sowing, gardening, and more – applied in the single time-use survey of rural women's days in the late 1950s.[66] The study provided valuable reference points, but it obscured the intricate rhythms of women's lives. As several correspondents of the *Encyclopédie* observed – and as contemporary observers confirmed throughout the 1960s – these women were 'always in a hurry', switching from one task to another in an unbroken blur of activity.[67] The relentless pace of women's daily lives is best illustrated by the fact that peeling

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vegetables and similar small chores were often squeezed between other pressing demands (new paring knives and peelers introduced during the inter-war years helped reduce the effort required for such tasks).[68] More importantly, the coal stove's ability to simmer stews, cook legumes, and prepare soups over several hours freed up time for women to attend to other household tasks; a 1952 advertisement claimed that a new model, specially designed for rural settings, could save them three hours of kitchen work. These hours allowed women to pick up indoor work, such as sewing, mending clothes, ironing, and doing laundry. Outside, they grew produce in the garden to vary the menu and, in the backyard, tended to fowl that provided eggs and meat. Part of this produce was destined for the market rather than for home consumption. But both uses identified the essential economic role of women's unpaid labour as well as their revenue-generating activities, which were crucial in sustaining and reproducing the farm household. The advent of the cast-iron stove shifted women's labour and contributed to improving a family's standard of living.[69]

With a simple flick of a switch, modern cookers powered by bottled gas or electricity brought new energy to the household. Although their limited surfaces and substantial cost made them less suitable for large meals, these appliances nevertheless transformed daily routines. They made certain types of cooking faster, more efficient, and nearly effortless. Breakfast registered its initial impact, altering both its composition and the balance of household labour. An informant from the *Encyclopédie*'s network noted that men took longer to master these new domestic devices, yet they gradually began brewing their own coffee in the morning. In the Savoie region, electric hotplates shortened the preparation of breakfasts. In Ronchaux (Doubs), a hamlet of less than 100 inhabitants, the primary school teacher observed that 'the smaller cooking devices [hotplate, portable burner] introduced new practices in women's occupations. If an early-morning task requires the husband to go outdoors, he gets up on his own and reheats his coffee'. In the southern Gard department, the report noted that 'the husband, getting up in the morning, can prepare breakfast (coffee, milk coffee) without disturbing his wife'. It surely was a momentous step for a man, but hardly a leap in reshaping the sexual division of domestic labour. All the same, the shift let wives enjoy a little extra sleep – one more reason to welcome the electric coffee pot. It may also have facilitated the transition from soups, traditionally requiring women's labour and extended cooking times, to a lighter first meal. And it brought some savings, as noted in the 1936 report from Auchel (Pas-de-Calais), because heating ceased the moment the coffee reached the perfect temperature – unlike wood or coal, which would have continued burning even when the beverage was already hot.[70]

Speed set these new utensils apart. No longer was it necessary to keep an eye on embers throughout the day. The feature allowed for the quick reheating of dishes prepared in advance. It certainly reinforced the coal stove's effect on women's capacity to juggle different household charges. The account from the Vaucluse identified responsibilities that benefited from freed-up time. 'Since the introduction of portable cookers running on petrol or, more recently, bottled gas, women are not as completely absorbed in cooking. They now have more time to dedicate to cleanliness and domestic hygiene. The children, previously somewhat neglected, now receive better care and closer supervision in their education.' These substitutions pertained to care activities that took place in or near the farmhouse. However, new energy sources also broadened the geographic scope of farm wives' activities. 'She can now work in the fields because the meal will be ready quickly most of the time', noted the 1936 report from a cluster of villages in the Deux-Sèvres department. The same observation was made in villages in the Doubs department 'where the *Butagaz* cooker enables housewives to work in the fields and to prepare a meal swiftly upon returning home'.[71] It was a welcome relief where agricultural labour was scarce. The compression of cooking time freed women to take on both agricultural and non-agricultural tasks. The shift redistributed their labour in the face of higher expectations for cleaner homes and greater maternal involvement in children's schooling, all the while increasing their unpaid contributions to the farm. In other words, it reduced but intensified kitchen work, expanded women's caregiving and deepened their economic role within the household.

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The introduction of new fuels and kitchen technologies sparked a quiet revolution in rural households. These transformations reshaped daily routines, introduced fresh culinary options, and expanded the range of dishes served. Cast-iron stoves, with their two or four-burner plates, were key to cooking multiple dishes at the same time. While the *Encyclopédie*'s unidentified chronicler in Corrèze recounted farmwives' dreams of 'possessing a cast-iron stove to prepare more refined, or at the very least, less ordinary dishes', it is worth considering whether this statement reflected a projection rooted in broader societal norms. New domestic tools tended to be cast as symbols of progress and refinement. In reality, rural women faced competing demands and resource constraints. A report from Uzelle (Doubs) observed that 'keeping four pots on the stove facilitates women's work' compared to the demands of cooking over a fireplace. Yet the effort required to prepare the ingredients for more varied meals was likely more intensive than that needed for a one-pot dish. (In this case, the housewife prepared a meal for the family besides the potatoes and beetroots set aside for the farm animals.) At the very least, that was the takeaway from one respondent's exchange with an investigator from the *Encyclopédie*: 'Nowadays, we cook even more than before (. . .). We no longer have soup at noon, so we have to prepare two vegetables; we cook twice a day: midday takes the longest, and in the evening, we make soup with vegetables and bacon.'[72]

Adapting to these innovations necessitated the acquisition of new tools to complement cast-iron stoves and small, portable cookers. Amid these changes, the correspondent in the Lozère department observed that 'kitchen utensils have advanced with the times: aluminium and enamelled cast iron have supplanted earthenware, clay, and beaten-iron pots and pans. The changes are not particularly complex. Yet, every household now possesses a coffeemaker – an item that was a rarity before the war'. Cast-iron pans found extensive use in rural households: the *marmite*, akin to the Dutch oven, served well for slow-cooked stews and soups, while the *brasière*, or braising pan, was used for searing meats before simmering. Frying pans rounded out the essential set of cooking tools, underscoring the versatility of cast iron in everyday cooking. Although large-sized cookware remained important in the 1930s, one observer noted that pots and pans had become more numerous but tended to be smaller in volume. Their design aimed at preparing just enough food for an individual family meal. Ultimately, these evolving tools and materials made it possible to serve a wider variety of dishes.[73]

Observers noticed. They ascertained that 'peasant cuisine is modernizing'. Both the process and the product were evolving. However, these changes did not immediately permeate everyday life. One notable tradition that endured was the custom of the one-pot meal – the hearty stew or thick soup – which remained a staple on weekdays at both lunch and dinner. The 1936 report from L'Isle-sur-le-Doubs described the preparation of the summer meal as 'simple: a large pot of water, a handful of salt, a chunk of bacon, potatoes, and cabbage, and occasionally a sausage. The soup is left to cook on the stove, while the housewife attends to other tasks. With bread and butter, this makes for a simple yet substantial meal'. Such stews, or *ragoûts* or *potées*, typically simmered for two to three hours, sometimes cooking for the entire morning for lunch or the whole afternoon for dinner.[74]

Substitutes helped shorten the cooking time of these meals. During the busiest phases of agricultural labour when the wife's use of time required optimisation, pasta – more readily available at grocers after World War I, whether in brick-and-mortar shops or from travelling vendors – became a practical replacement for slower-cooking vegetables. Likewise, rice – still quite unpopular – found a foothold in rural kitchens by stepping in for legumes and vegetables in stews. A chronicler observed the seasonal factor at play: winter brought an abundance of garden produce, from potatoes and carrots to cabbage, beetroots, and rutabagas (which often required arduous peeling), while summer became the season of pasta and rice, which not only simplified kitchen chores but added variety to the menu. As the pressure mounted during haying and harvesting and hours grew scarcer, eggs became essential for compressing cooking time. Rather than selling them, farm wives quickly whipped up omelettes.[75]

Sundays broke from the everyday routine. Holidays were of course occasions for socialising where farm wives showcased their culinary skills.[76] Leveraging the full capabilities of their cast-iron stoves, they prepared elaborate meals that honoured and impressed their guests. As noted by a correspondent of the *Encyclopédie* in the Puy-de-Dôme, 'the stove leads to the preparation of new dishes'. This transformation in domestic cooking was particularly evident during a transitional period when the traditional hearth and the new stove coexisted. From Domagné in Ille-et-Vilaine to Saint-Laurent in the Creuse and Brousse in the Tarn, the newly acquired stove complemented, but did not replace the hearth; it was reserved for special occasions, such as when guests gathered, a practice confirmed by ethnographer De La Rivière as late as the 1950s in poorer departments like Manche and Lozère.[77] While preparing these meals added to women's domestic burdens, it could also provide a sense of accomplishment and the pleasure of creating something special for their families and guests. Recipes sourced from magazines, cookbooks, home economics classes, and exchanges with neighbours expanded culinary repertoires. These dishes included pastries, roasted rabbit stew, noodle gratin, duck with olives, roasted chicken, and boiled hen – meals cooked on the stovetop or in the stove's oven that a contemporary report described as formerly decidedly bourgeois but that 'the farm wife now occasionally serves.'[78] These meals straddled two worlds: they embodied respect for tradition and reflected a willingness to embrace evolving tastes and possibilities.

The emergence of a more diverse and varied cuisine was not without its detractors. Nostalgia often tinged critiques. The report for the *Encyclopédie* from Elbeuf-en-Bray (Seine-Inférieure) observed that 'cast-iron stoves have enabled the preparation of numerous dishes previously impossible to cook over an open fireplace. However, what has vanished are those fine roasted legs of lamb and chickens on the spit, once the pride and delight of our rural feasts.'[79] Even as new stoves became commonplace, some households maintained traditions; they occasionally roasted chickens, turkeys or pheasants over the old open hearth in what looks like the preservation of a culinary heritage that resisted the encroachment of modern cooking technologies.[80]

Yet, criticisms extended beyond the mere longing for a vanished golden age to touch on deeper social shifts that were reshaping rural foodways. Observers lamented the impact of accelerated living rhythms on culinary culture. The introduction of time-saving utensils and convenience foods often became a target for these critiques. From the Doubs region, a collaborator of the *Encyclopédie* wrote, 'consider now the speed of life. We live faster, we want to do everything very quickly. Hence, the decline of long-simmered dishes prepared with love.' Store-bought tins and instant soups, another correspondent in the enquiry into popular food habits argued, facilitated a hurried cuisine, which was perceived as detrimental to consumers' health. Canned foods – from vegetables to meats and fish – were appealing, one teacher noted, not necessarily for saving money but because they offered a significant economy of time.[81] The culinary landscape in the countryside reflected a broader struggle: coping with the challenges of a faster-paced, convenience-driven society.

The societal shift induced tensions that found their most intimate expression in the kitchen where women faced a unique dilemma: the pull of tradition versus the allure of modernity. The observer from Le Cailar (Gard), roughly 1300 inhabitants, put it in utterly moralistic terms when opposing 'the hardworking and frugal housewife, whose primary concern is preparing a good soup or a hearty stew (. . .) to the housewife who always waits until the last half-hour to think about her meal. The latter can only hastily prepare an omelette, fried potatoes, liver, or any other food suitable for this type of cooking. It is clear that such a way of cooking, if repeated often, is a sign of carelessness and laziness.'[82] The conflict, evocative of La Fontaine's fable of the ant and the grasshopper, was stark. Traditional cooking, like the ant's diligence, upheld the labourious crafting of substantial one-pot meals as both a culinary and moral ideal. Yet the rise of faster, more efficient cooking methods, akin to the grasshopper's carefree approach, threatened this ideal. To some, embracing convenience signalled not just a practical adjustment but a troubling decline in values. The traditional 'proper meal' seemed to be diminished not only by the demands of modern life but also by the conveniences it offered.

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Conclusion

The 1960s ushered in a new wave of technological innovations. The arrival of modern network utilities – gas, electricity, and water – along with the cookers and stoves they powered, promised once again to ease the burdens of rural housework.[83] In the following years, many factors, from the mechanisation of agriculture to the spread of domestic appliances, contributed to reshaping farm women's labour. Retrospectively, based on later inquiries documenting a long-term decline in women's workload, we can recognise that the first two scientific studies on French farm women's time budget were conducted precisely at the peak of their workload in the late 1950s. In some ways, they mark the endpoint of the period explored through the *Encyclopédie*'s 1936 investigation of rural foodways and its archival records. Yet, unlike the earlier survey, neither paid attention to energy management. Both the quantitative and ethnographic studies confirmed, however, that farm women worked, on average, more than twelve hours a day. The workday varied according to the seasons, of course, and even Sundays brought their share of toil, including, as we now know, the preparation of more sumptuous meals. While neither inquiry was entirely certain whether mealtimes should indeed be counted as women's leisure (though, in reality, there was very little of it), they agreed that multitasking, a notion not yet recognised at the time, defined their daily routines.[84] Kitchen equipment, particularly cooking utensils, and their energy sources played a significant role in establishing this reality. Over the previous century, these technological advancements introduced new complexities in the daily routines of rural women.

The transition from open fireplaces to enclosed stoves, the adoption of coal as a fuel source, and the later addition of gas cookers and hotplates transformed kitchens and cooking in rural France between the 1850s and the 1950s. Each of these three innovations not only affected the rhythm, content and even scope of domestic tasks but had a profound impact on the women who managed them. The changes did not just mean new tools and energy sources, they signified a shift in the very pace of daily life and a modification of both the demands of labour and the experience of family life on the farm. The enclosed coal stove reduced the continual tending required by an open fire. The trade-off was time freed up for other household tasks – such as child care, cleaning, and food production in the farmyard – and greater availability for fieldwork. In the interwar years, hotplates and gas cookers allowed dishes to be prepared more quickly, a further transformation of kitchens. Yet rather than easing women's workload, these innovations merely reallocated their labour. On farms, where efficiency outweighed leisure, such changes redirected rather than reduced their domestic burdens.

Regional climate, economic status, and the availability of fuel significantly influenced the pace of innovation. Wealthier households and regions often led this transition. Wood, though labour-intensive to process, remained the primary fuel source due to its abundance while coal and bottled gas offered convenience at a financial premium. The newer fuel sources did not replace wood but were instead integrated into the existing repertoire. It was up to farm wives, as stewards of the kitchen, to orchestrate their use. They chose the most suitable fuel depending on the time of day, season, or the specific demands of the meal. Églantine Pagès, a primary school teacher in Gallargues (Gard), a village of 1300 inhabitants in the 1930s, captured this choreography with precision and affection, portraying her mother as the master conductor of energy choices in their kitchen symphony performance.

> 'When it comes to cooking food, the number of available options means absolutely nothing. At home, we have gas, electricity, a stove, a hearth. Mama doesn't use the electric burner – it is too expensive. She uses the stove a lot in winter. When she is in a hurry, she uses [bottled] gas. In summer, she no longer lights the stove, and cooking everything with gas would be far too costly. She has three movable cooking pots [*potagers*] in the fireplace: one for soup, one for fruit, and one for stew. The kerosene burner is used to reheat already-cooked food. However, the food for the pigs can only be made on the fire in the hearth.'[85]

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Entangled in a network of old and new energy sources and anchored at the core of the 'total organisation of domestic labour' between 1860 and 1960, women shouldered the weight of integrating innovations into traditional routines. They embraced progress but were bound by old expectations. Despite their contributions to rural well-being, gender roles remained deeply entrenched.

Notes

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37 CRC 3.183, Saint-Front, Haute-Loire.

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