Excerpts from:

Alternative Agriculture
A History: From the Black Death to the Present Day

PART I. THE FIRST EXPERIENCE, 1350—1500

Chapter 1. Agriculture after the Black Death

…Thus, among industrial crops on monastic estates in east Norfolk, rapeseed is found in c.1255, madder in 1274 and 1305-6, and flax and hemp are named in 1304. In a later phase of alternative agriculture, these crops would show themselves to be notably successful in reviving some farmers' flagging fortunes. Whether they were further cultivated when they were more desperately needed in the fifteenth century is uncertain. Certainly, they did not spread widely. But then a likely reason is to hand, inasmuch as they made heavy demands on labour, and so were inappropriate after the Black Death when labour was short.

….Some notable new crops, which failed to take hold in England, forged ahead in the Netherlands at this time, without setbacks. They were helped by the fact that plague mortality was much lower in the Netherlands; indeed, some areas went unscathed. So a plentiful labour supply helped these finicky, demanding crops to establish themselves firmly and, as better knowledge in cultivating plants like hops, rapeseed, madder, and woad accumulated in the fifteenth century, farmers in the broader Rhineland area all gained confidence in growing them. In consequence, historians write eloquently about the spread of intensive husbandry in the Low Countries, and more widely along the lower Rhine, in the fourteenth and fifteenth centuries. Rapeseed, madder, woad, flax, hemp, and hops are regularly found. Other new crops were buckwheat by 1394-5, for feeding rabbits and fattening poultry; spurry, first mentioned in 1426 Flanders, and much valued as a fodder for dairy cows; turnips as green fodder for livestock in 1404; and furze, cultivated for fodder (to feed rabbits *inter alia*) and for fuel by 1490. All these crops would succeed in England at a later opportunity, when the circumstances as regards labour were more favourable. But in the fifteenth century, despite the tentative appearance of some of them in thirteenth and early fourteenth centuries, they did not capture a secure place as alternatives. And when they returned in the next phase of alternative agriculture, all skill in cultivating them had been forgotten, and had to be relearned.

PART II. THE SECOND EXPERIENCE, 1650—1750

Chapter 2. Entering a New Era

…Another group of alternative crops was introduced into public discussion by government problems which touched upon commercial and defensive policies. As price inflation took hold throughout western Europe, and acute difficulties resulted when some foreign supplies were interrupted by war, Englishmen bewailed their dependence on increasingly expensive imports, and saw the sense of producing the same commodities at home. In 1540 among the most endangered goods were dyestuffs, linen, and canvas. This called for the domestic production of madder, woad, flax, and hemp. In 1549, woad and now oil were placed at the top of the list.

…So politicians did not simply beat the air when they regular reiterated the desirability of growing more flax and hemp, of finding an oil crop which would reduce expensive imports of olive oil, and of producing woad and madder for the dyeing industry; instead of importing woad from Toulouse in France and madder from Zealand in the Low Countries.

…By gentle prodding, propaganda, and grants of one sort and another, gentlemen, merchants and, eventually, yeomen farmers were persuaded to become the agents of governmental scheming. …The final verdict on all these schemes was not ready to be passed until the later seventeenth century, when many efforts at substituting home-grown crops for imports had succeeded. Notable among these were hops, woad, rapeseed, flax, and hemp, all finding a secure place in farmers' cropping schedules, and contributing valuable items to the success of alternative agriculture now that it had become an urgent national necessity.

…Under the circumstances prevailing by the end of the sixteenth century; however, the best solutions were those which used labour in abundance. The rapid growth of population, almost doubling numbers between 1541 (2.7 million) and 1656 (5.3 million), raised the critical problem of finding work in town and country alike. The new Poor Law under Elizabeth suggested one solution by obliging cities and towns, from 1576 onwards, to keep workshops to employ the poor. This work in towns mostly involved industrial tasks, preparing and weaving wool, hemp, and flax, knitting, lace-making, and so on. They seem to have been brought into operation in bad times only, rather than being a continuous regime.

…Of a similar order to the toil required for vegetables, herbs, and fruits, were the labour demands of crops like madder, hemp, flax, rapeseed, saffron, and hops. In different places each was developed to exploit in the best way possible the local circumstances.

Chapter 3 - Settling Into a Routine

…The serious attention given to horticulture is best exemplified in the books published. …The newly formed Royal Society was responsible for urging authorship on its members… Members also made sure that a scheme to compose a history of agriculture and gardening paid due attention to 'materials for kitchen garden… and winter greens' as well as new industrial crops, those named on this occasion being woad, hops, flax, hemp, madder, buckwheat, liquorice, and rapeseed.

…Industrial crops, like rapeseed, dye plants, hops, hemp, and flax had received official encouragement in the years between about 1540 and 1580 through a government-sponsored drive to curb foreign imports. Following from this, the immigration of foreign experts had established some of these new, or revived, crops firmly on the farming scene, and allowed another unanticipated benefit to emerge, namely, their ability to employ large numbers of the poor. Their advance after 1660 called for less publicity, though the task of fitting them into a rotation was a learning process, profiting from foreign experience, but involved trial and error, until a few satisfactory alternatives emerged. Hemp and flax, for example, had generally been grown on enclosed plots, but in the Isle of Axholme in Lincolnshire which specialized for the market, a four-course rotation, extolled in the mid-eighteenth century, comprised barley, hemp, flax, and wheat or rye, without any fallow. We are not told if this was used in common fields, but unusual rotations like this were certainly found possible in other places.

…Industrial crops… all showed a strong tendency after 1660 to cluster in one or more distinctive areas and become a locally renowned speciality. This was the case with hemp and flax. They were always

common crops in small crofts on peasant holdings, but they were much more conspicuous in certain districts like the Lincolnshire fens, parts of Norfolk, and Suffolk, Dorset, Somerset, and Staffordshire, near Maidstone in Kent, and in Lancashire. From Henry VIII's reign onwards, intermittently but continuing into the second half of the seventeenth century; government statutes tried to compel the growing of a small acreage everywhere—a quarter of an acre in every sixty acres was the proportion laid down in 1532. But specialized areas emerged and won a reputation for their ropes, sackcloth, sailcloth, canvas, or linen thread, and in such places no compulsion to grow was needed.

…Only indirectly does some weighty evidence of the economic significance of alternative crops come to light, namely, in the increasing numbers of tithe disputes after 1650. Many alternative crops had long been grown as food for the household, and had never been tithed. But when once they became a commercial item, regularly sold at the market, rectors or vicars claimed tithe payment. Some of the most incisive evidence of alternative agriculture, therefore, derives from the papers assembled to end such quarrels. In Staffordshire, for example, incumbents of different parishes showed tithe income from hemp and flax, potatoes, turnips, carrots, parsnips, peas, beans, hops, rapeseed, apples, pears, and plums. Some of this might be grown in gardens, even though it was destined for commercial sale, but increasingly it appeared in fields…

Chapter 4 – Alternative Crops: the successes

…Dependence on the textile industry had proved a serious weakness when European trade depression struck hard in the 1550s. A report by William Herle, who already had an oil patent, and who became one of William Cecil's industrial informants on new projects in general, was therefore no casual commentary. Only about four or five people in the realm made oil from seeds 'in very imperfect or unprofitable manner', it was claimed. So the growing of more hemp and flax (both of which yielded oil) *and* rapeseed was urged. These crops, it was said, 'will be more gainful to the owners of land than any corn'.

The 1570s saw a cluster of proposals put before the government for making oil. One request for a patent came from a Frenchman, another from an Italian and another from a Dutchman called William Wade, possibly a kinsman of Armigil Wade, the earlier patentee.

Chapter 5 Alternative Crops: Near-Failures And Failures

…Textiles made in England in the sixteenth century were woollen cloth, linen, and canvas. For all these fabrics much of the raw material was home-grown. The wool was produced on English pastures, and woollen cloth production was so important that it constituted three-quarters of all English commodities traded overseas. When a severe depression struck in 1550 and revealed how heavily the economy relied on one article for its foreign trade, the government strove to broaden the economic base of the nation's wealth.

Among the first opportunities seized was the chance to extend the variety of cloths manufactured. More lighter-weight fabrics were already entering the home market from abroad. New Draperies, as they were called, mixed different fibres - for example, linen with wool—and achieved more varied finishes. Cloths with more mixed fibres began to be made at home. As for English-made linen and canvas, these did not compete favourably with the quality of foreign manufacturers, and so a great deal continued to

be imported from France, the Netherlands, and Germany. In the new mood of economic nationalism, home producers were now put on their mettle to achieve something that was equally marketable.

Statutes were passed to encourage more hemp- and flax-growing, which thus became a useful branch of alternative agriculture. It was far from being a new venture, for flax and hemp were, commonplace crops on peasant farms, but it was launched on a new lease of life. To improve the standard of weaving, the government encouraged town authorities to invite foreign weavers to settle in England. His policy, inaugurated in the 1560s, resulted in a denser concentration of linen and hemp manufacture in certain parts of the country notably in Norfolk, in Suffolk, and in Somerset, around Bridport, and much closer attention paid to standards of workmanship. As a result, the English, while continuing to produce rough canvas for sacks and aprons, also produced finer thread for lace and shirts.

Part III: THE THIRD EXPERIENCE, 1879-1939

Chapter 6: Familiar Strategies

…The retreat of alternative produce from the farming scene was the negative side of the agricultural revolution, and since historians concentrate on its positive aspects, giving them the central place in our textbooks, the losses are neither discussed nor measured. A more balanced picture filters through in scattered documents and comments. A comparison of the 1801 crop returns nation-wide with the tithe files of 1836, for example, shows the acreage of woad, caraway, liquorice diminishing, while hemp, flax, and hops became concentrated in a few specialized areas." Rider Haggard in 1901 cheerfully reported on the time 'when grain was profitable, [and] it knocked out hemp'.

…Two fibre crops which had been much grown in the past, and had been strongly urged on farmers, to good effect, in the seventeenth century were flax and hemp. Official prodding had been markedly successful in Scotland and Ireland, but it also made an impact in England, though the results can only be guessed at, and occasionally glimpsed, in the legislation to increase the acreages grown, the bounties paid thereon, and the penalties on imports. The outstanding flax-growing counties come to light in 1782-5 as Somerset, Dorset, the fens of Lincolnshire, and West Yorkshire; and the same counties, plus perhaps Staffordshire, would probably have been distinguished if hemp-growing had been measured. But the two crops were by then at odds with their time, and, if East Anglia is representative of the other areas, the crop was killed by high cereal prices in the French and Napoleonic wars. Certainly, it faded from England between 1780 and 1810. In the 1880s it might well have flourished again if the factories processing the fibres had still existed, and if the rail freight costs had been lower.

…Hemp, similarly, might have bad a new future, for it had been grown in many counties in the past for making canvas and rope, and English hemp was considered to be of excellent quality. The Secretary of the Hemp and Tow Spinners' Association, William R. Storey, was questioned by Rider Haggard *circa* 1900, but he told a sorry story. The profits of grain in earlier decades had knocked out hemp, and, although he would have favoured English hemp before any foreign imports, it was now brought from Russia and Italy, and the freight costs gave no encouragement to English growers. To transport hemp to Ripon from St. Petersburg cost 28s. a ton, compared with a cost of 31s. 6d. a ton from Hilgay in Norfolk. Hemp-growing had no future in such circumstances.

Part IV: THE FOURTH EXPERIENCE, 1980s ONWARDS

Chapter 9: Alternative Agriculture Today

…Oils from plants are all bio-degradable, and so are commended on environmental grounds. So the future of this category of alternative crop, though unpredictable, is potentially large and lasting. But a multitude of other industrial possibilities are now being explored more deliberately, in order to use the proteins, starch, and fibres from plants, and the lignin from wood. Advancing well beyond the research stage, hemp-growing for paper was started in England in 1980 by a courageous early pioneer, John Hanson of Lyme Regis, Dorset. Intent on positive action to conserve world resources, he passed one milestone when the index of the 1992 issue of the *Ecologist* was made of his hempen paper. In 1993 a consortium of twenty farmers, calling themselves Hemcore, was assembled, growing 1,500 acres of hemp in East Anglia. This crop will make more paper (of which a fine quality is at present being used for cigarettes and bibles), while the waste is being sold as horse bedding, for it is absorbent and makes good compost. This last idea came from France, where 10,000 acres of hemp are already grown. Yet another plan for using hemp as a fuel has now led to tests, with promising results, in Ireland, the Irish climate being eminently suitable for the new strain that has been developed. The plant grows in six months up to 14 feet; it is cheaper than wheat or barley to produce; and it burns as well as wood, and yields similar quantities of energy. In power stations it cou1d replace Irish peat which is a diminishing resource.

Other plans for hemp and flax have moved forward at the instigation of Harry Gilbertson and the Natural Fibres Organisation of Silsoe, Bedfordshire, and Robert Lukies, an Essex farmer. Gilbertson led the effort to invent a decorticating machine for extracting the tough stem fibres of these plants, and his engineering success holds out the possibility of exploiting the resilient qualities of these fibres in cloth-making and for specialist products such as ‘revegetation blankets’ in farming, and absorbent materials to soak up oil from polluted water. Lukies was planning in April 1995 to plant 1,000 acres of hemp at Great Dunmow, and underlined the merits of the crop in obliterating weeds and using only half the fertilizer used on cereals. If, as is hoped, this venture heralds ‘a much-needed agricultural and industrial revolution’—in Germany too, where the industrial uses of hemp are being similarly explored—it will constitute the third part of a serial story begun in the sixteenth century. An act to increase the acreage of hemp and flax was passed in 1566, mainly to reduce imports, and cogent arguments for more forceful measures to the same end circulated in Westminster in the 1570s. Propaganda produced some positive results, and in seventeenth century certain parts of England won a reputation for specialising in hemp and flax for canvas, sailcloth, sacking, ropes, and linen thread. The occupation lost momentum after 1750, and when hopes revived in the 1880s they were quickly dashed, for hemp was by then being carried more cheaply from Russia and Italy than from Norfolk to its buyers in North Yorkshire. A revival of flax was similarly discussed but dismissed since a large scutching mill in Suffolk had closed down in the 1860s, just too soon for flax to exploit its new chance. Even so, flax for paper was being grown by one intrepid Welsh farmer at Newport, Monmouth, in 1881.

…The scene, as it was presented in 1914, has a familiar look in the mid-1990s, though the economic logic is different. The role of medicinal plants has been enhanced in the last three decades of the twentieth century by a preference, when curing certain conditions, for herbal remedies, rather than chemical drugs, and by the recognition that plants could cheapen costs and could assist the poor populations of the world. Will many more medical plants return again to the fields? Already evening

primrose has become a familiar crop, used in the treatment of eczema, liver disease, multiple sclerosis, and other conditions. Sleeplessness submits to valerian, hops, and passion flower. Feverfew alleviates migraine. The evident benefits of hemp *(cannabis)* in relieving sufferers from multiple sclerosis is now stimulating a campaign to permit field cultivation (banned since 1971), and, if successful will restore a traditionally known medicinal plant (favourably appraised in Nicholas Culpepper's *Complete Herbal* in the seventeenth century), to the fields and the pharmacopoeia.

POSTSCRIPT

…Another of the most vibrant sectors in the search for alternative produce from the farm concerns medicinal plants, helped by the re-reading of old herbals.

…The same serious search continues for industrial crops, driven forward by dedicated individuals possessing imagination and courage. All are being scrutinized for their essential oils. Crops as a source of fuel are prominent on the agenda, and among these willow is the most serious contender, being coppiced on a short rotation, and due to be used at the power station now under construction at Eggborough, near Selby, Yorkshire. Another candidate is 'biofuel' from arable crops. Lincolnshire is the campaign centre for biofuel in England and encouragement is to be drawn from the Volkswagen company which is converting diesel engines to run alternatively on diesel or on rapeseed oil. Industrial hemp is also being evaluated as a fuel for power stations both here in the UK and in Ireland.

…A plant with great industrial potential, but as yet hampered by its tarnished reputation in recent decades is hemp *(cannabis sativa).* It was demonized and banned in 1971 when the varieties containing the narcotic THC dominated the scene: But hemp-growing in the past received strong government support, notably in the seventeenth and eighteenth centuries, for it was a trouble-free farm crop, gave much work to the unemployed, and produced an essential fibre with innumerable uses. Not a word was uttered then about its dangers as a drug. This suggests that the English variety was extremely low in THC and that the highly narcotic variety was a late introduction into Britain, possibly arriving accidentally in imported bird seed. Angry responses were stirred both in France and England when Anita Roddick offered products based on hemp oil in her Bodyshops in 1998. At present its medical use in multiple sclerosis is argued most insistently. But perhaps its greatest promise as a substantial farm crop lies in its fibres for making fabrics, both coarse and fine, and for making paper which would save acres of woodland. As a routine arable crop bringing annual returns, it could play a role on the farm not unlike sugar beet in the alternative phase in the 1920s and 1930s. Indeed, this hope was expressed in *The Farmer's Weekly* on 17th September, 1999, for already English industrial hemp is being bought by German manufacturers for light-weight door panels in cars, and by an American maker of writing and specialist papers, responding to environmentally-aware companies in Europe and the Middle East.

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