

Use of Food Processing in the Nineteenth and Twentieth Centuries and its Nutritional Consequences

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Food process technology (processed food) often receives a "bad press". Actually, it is probably a fair argument to say its checkered history has been more good than bad. For example, canned beans and spray-dried milk have fed generations of children and infants.

Processing intervention, such as canning, pasteurisation, baro-sterilisation, or maceration and comminution renders food more digestible, softening tissues and bones i.e. hydroxyapatite (e.g. sardine bone) rendering it entirely edible. Perhaps in the main, this "severe" treatment ensures safety and quality in a freedom from thermophilic bacteria, their toxins and their spores (e.g. *Clostridium botulinum*; botulism) or naturally occurring pathogens and food spoiling germs (e.g. anti-nutritional bugs such as *Salmonella* spp and *Staphylococcus* spp) that cause diarrhoea, vomiting and Thermo-catalysis can produce nutrients (e.g. conversion to vitamin A from beta-carotene cleavage, the yellow colour in vegetables, or red lycopene from tomato skins).

Some changes are however, not ideal, such as thermal change (denaturation of proteins, case hardening and rancidity) and yet may also produce something we love (e.g. pyrazines and specific roasted flavours in nuts, bread, coffee). Modification by the use of additives (e.g. the antioxidants, vitamin C and E) and preservatives (sucrose, benzoates, sorbates, citrates; all found in fruit) and texturisers (starch, cellulose, alginate, gelatin, aspic) is 'natural' in that these are found in foodstuffs. We simply extract from one food and put in another. Natural colourants are now popular and this is a visible change from the Victorian era and early 20th Century (e.g. coal-tar azo dyes replaced by food pigments, such as chlorophyll, betanin and crocin). Processing has also permitted new foods and innovations (vitaminised foods and supplements), such as low fat and easy spreadable butter, custard, jam and meringues, etc.