

**U DX397**

**Papers of James Clifford Gowland  
relating to Needler's Ltd**

**1930s-1940s**

**Accession number:** 2017/22

**Biographical Background:** James Clifford Gowland was born about 1907 in Hull. He attended Hull Grammar School, undertook a BSc at Hull Municipal Technical College, and then studied for the London University Special Degree in Chemistry. Whilst employed at Needlers, he worked in the laboratories under Mr C. P. Thorpe. He started as a Laboratory Assistant in 1925, was promoted to the post of Senior Assistant, and later became Chief Chemist. A significant element of his work for the company was in the production of the clear boiled sweets, 'Glace Fruit Drops'. He worked at Needler's until his death on 1 January 1969.

**Custodial history:** Deposited by Kate Dennett, daughter of James Clifford Gowland, 4 Oct 2017

**Description:** Papers relating to the work of James Clifford Gowland whilst employed by Needler's Ltd in various laboratory positions. Includes laboratory reports, proofs of research papers, water testing results, scientific notes, and a letter.

**Arrangement** Chronological

**Extent:** 0.16 linear metres

**Related material:** U DNE; U DX339; U DX374; U DX380

**Access conditions:** Access will be granted to any accredited reader

**Copyright:** Needlers Ltd

**Language:** English

- U DX397/1 File. 'Needlers Lab & Research Reports & Brand Comparisons etc' 1925-1949  
Typescript reports on the following: Imperial Room work to investigate change in toffee while it is being dipped; toffee boiling girls; Stanley's and Globe glucose consignments; invertase with chocolate centres; treatment of fruits with sugar syrups for fruit centre work; dextrin in boiled sweets; chipping of buttered Brazils; keeping properties of fruit drops; production of low boiled toffees; recipes in use 3 Apr 1929; analysis of Cadbury's Dairy Milk chocolate with Needler's County Milk chocolate; cost of glazing Brazils; test on Winnowing machine; splitting of chocolate nougat; bloom on fatty centres; keeping quality of Wrigley's P.K. and Needler's K.C. chewing sweets; bursting of chocolate nougat; Terry's cream toffee; determination of SO<sub>2</sub> in jams; Terry's chocolate; keeping tests on LLC lozenges and gums and 'extra strong mints'; chocolate machine dipping; cocoa bean cleaning; levulose and invert sugar in the presence of other reducing sugars; Danish couverture; comparison of Victory lozenges and Needlers LLC lozenges; moisture penetration through moisture proof cellophane; lab report 1931; recipes for winter lines May 1932; canned fruit examinations; chloroform content; manufacture of LLC lozenges; analysis of chocolate; condensed milk; table of water contents; 1933 lab reports nos.57-74 (incomplete); canning; bursting of 2d whipped cream lines; smoothness of toffees; composition of raspberries; mixed fruit pastille; determination of arsenic; graduation of apparatus; pan work; Garton's glucose; fruit content of fruit pulps; dried meth powder; creams and fillings; ice cream couverture; hypsometer aneroid; production of clear fruit drops; liquid marzipan filling; rolled cream centres; fluorescence; common commercial plastics; tartaric acid corrections; sulphuric acid dilution table; fuel economy; canned food storage; manufacture of plain chocolate; poisoning by benzene and its homologues; Caley chocolate quality; mixers; walnuts; viscosity of sugar syrups; solubility of sugars; pump conche; concrete floor; solidification curves of mixtures of cocoa butter and illipe butter; M.P. film; defects in acid washed jars.  
1 file
- U DX397/2 File. Laboratory Notes 1930s  
Manuscript notes relating to lab research, includes references to the following: differentiation and integration; electrolysis; outline of results of an investigation; fuels (classes, combustion heats, ignition temperatures, costs). Also extract from Smith, Modern Chemical Nomenclature.  
1 file

- U DX397/3 File. Laboratory Notes 1930s  
Manuscript notes relating to lab research, includes references to the following: relation of vapour pressure to composition of liquid at constant temperature; fruit, biscuit and coffee flavours; outline for qualitative organic analysis investigations; optically active ammonium compounds; determination of nitrogen by Kjeldahl method; esters - practical. Also includes annotated pamphlet 'Invertase Concentrate' published by Honeywill & Stein Limited.  
1 file
- U DX397/4 File. Laboratory and Research Notes 1932-1944  
.Manuscript notes relating to lab research, includes references to the following: notes and diagrams re 'tong' system machinery; notes and diagrams re travelling belt machinery; use of refined cocoa; determination of micro-value; causes of failure with chemical doctors; Turkish Delight recipe; directions for construction of lab equipment; peanut butter; fruit drops; use of pectin and fruit pulp; lozenges. Also contains the following pamphlets: Cast Cream Centres (The Nulomoline Company); Nulomoline Frappe (The Nulomoline Company); The Burgess System of Candy Making and Formulas (The Burgess Supply Company); Ph Values - What they are and how to determine them (The British Drug Houses Ltd); Candy Through the Ages Part I by Mario Gianini.  
1 file
- U DX397/5 File. Proof Copy Research Papers 1932-1944  
Proofs of the following research papers relating to research involving Needlers and James Clifford Gowland:  
1. The solubility of cocoa, 27 Apr 1932  
2. The preservation of fruit pulps for jam and marmalade making, 30 Jun 1932  
3. Acid taste, Jul 1934  
4. Confectionery sugars: their composition, boiling properties, etc. report i, 27 Jul 1936  
5. Confectionery sugars: their composition, boiling properties, etc., report ii, 30 Mar 1938  
6. The walnuts, its production and storage, with special reference to insect infestation, 13 Apr 1938  
7. The control of moth pests in factories part iii - factory fittings, mountings, appliances and furnishings, 3 Aug 1938  
8. The direct refractometric determination of dissolved solids in the syrup fraction of confectionery products and in james, jelly tablets, etc., 31 Jan 1939  
9. The prevention of the development of rancidity in coconut confectionery, 8 Feb 1939  
10. The vapour pressure of confectionery report i: the syrup fraction, 22 Aug 1939  
11. The composition of jam fruits, 9 Jun 1944  
12. Chocolate-coated ice cream bars, n.d.  
1 file

Hull History Centre: Papers of James Clifford Gowland relating to Needler's Ltd

U DX397/6	Letter. J.C. Gowland to the Institute of Chemistry Applies for entrance to the institute, gives a brief outline of his education and employment history, includes reference to his position at Needler's Ltd 1 item	26 Jul 1932
U DX397/7	File. Water Analysis Manuscript papers relating to testing of well water for pollution etc., includes data for Nov 1927, May 1928, Dec 1928, May 1936, and May 1938 1 file	1938