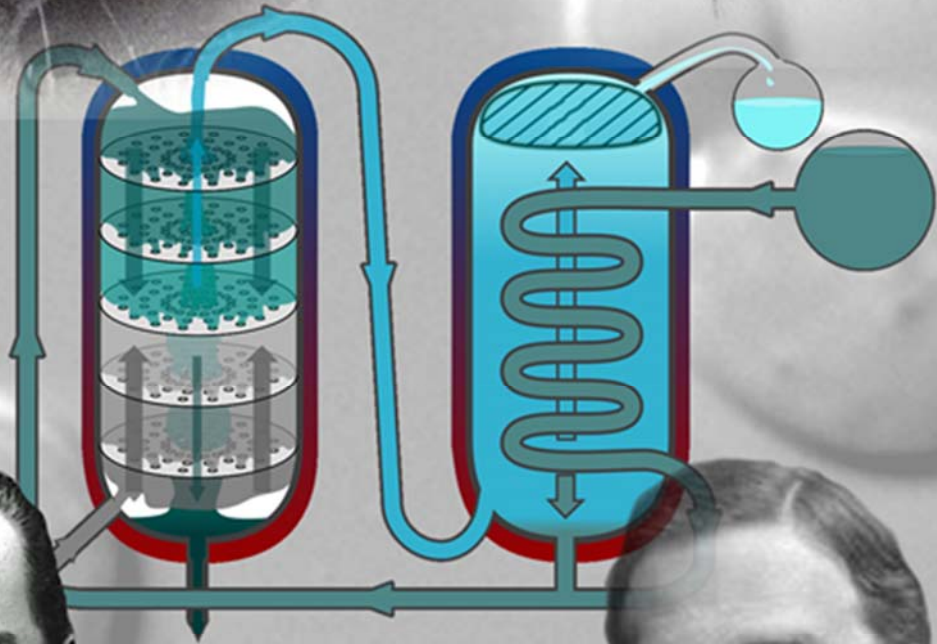


Alcohol Factories

RESEARCHED AND EDITED BY COLIN SHORT



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Alcohol Factories

Researched and Edited by Colin Short

Synopsis

On this journey to find the history around the rise and demise of the Alcohol Factories, the substance of this article, we briefly meet some interesting characters. *Aeneas Coffey*, an excise officer in Wicklow for a time, once called game keeper turned poacher, but retires to be an inventor and entrepreneur. *Darrell Figgis*, patriotic rebel, politician, and author. *Dr James Ryan*, medical doctor, and politician, late of Greystones. His son, *Senator Eoin Ryan Senior*, politician. *Jan Deidrick Postma*, Architect; and *Emil Skoda*, Civil Engineer. Each have interesting life stories that are retold and appended to this article.

Context

Liam Connellan [1] in his article dealing with the growth of Industry in the Republic of Ireland has split the period from the formation of the Free State, *Saorstát*, to Ireland joining the European Union in 1973 into several phases. The period I was interested in was the phase from 1932 until 1956 that he has called *The Protectionist Years*.

He writes:-

“At the foundation of the Irish Free State in 1922, the country's industry was very underdeveloped and based mainly on agricultural raw materials. The first major policy change was the imposition of tariff barriers in 1932, partly in response to the Great Depression following the Wall Street crash, but also as a means of building up its infant manufacturing base. The imposition of tariff barriers was quite common in small European countries at this time. This protectionist policy was moderately successful, and Irish industry achieved a rate of expansion of about three per cent per annum until the early 1950s”.

This had been foreseen at the inception of the Free State when Dáil Éireann set up a *National Commission of Inquiry into the resources and industries of Ireland* on 18th June 1919. Darrel Figgis¹ was appointed secretary of the Commission. Public meetings were held throughout the republic and sixty experts were interviewed during the proceedings. One such public meeting was remembered and reported recently in the Cork Independent 22nd January 2020.¹

The Commission had advertised in the National press for persons with expertise and evidence to give relating to the development of resources and industry in Ireland. Whilst the response on most subjects was good and plentiful the response for industrial alcohol was from a single person. Evidence was taken from interested persons in the City Hall, Dublin starting on Tuesday 2nd December 1919; evidence for industrial alcohol was taken on the fifth day, Wednesday 10th December 1919, from R.N. Tweedy M.I.E.E.²

His contribution was published [2] in the book of evidence by the Commission; he covered the manufacture of Industrial Alcohol at the time in the United Kingdom, Germany, United States, and Australia citing its use instead of petroleum and using the spirit to improve performance or increase liquid quantity in times of short supply. It

¹ For more information refer to the appendix on Darrel Figgis

² M.I.E.E. normally signifies the person is a member of the Institution of Electrical Engineers.

was stated that the petrol engine had only recently been designed and was becoming very popular to provide drive power for private and commercial vehicles. I was interested to note it was considered that there was thought to be only 20 to 25 years supply of petrol from the sources in the United States; it was commented that maybe more oil fields would be discovered. His evidence continued to look at the raw materials available including potatoes, mangolds, imported maize, and other starchy crops that could be fermented and distilled. Emphasising that the residue was still a valuable feed for animals after the starch had been removed. He high lighted points in the Excise Laws that would hinder the production of Industrial Alcohol; including the inability to distil while fermentation was in progress, and rules regarding the location of distilleries. Using the cooperative movement and harnessing the power of steam used in the creamery processing was also mentioned. He felt the returning soldiers from the war could be offered land to grow the alcohol crops to encourage return to agricultural areas, improving labour use by fermentation and distillation during the winter period when there was a surplus of labour available. Much of his recommendations were included in the final report [3], to which he was a signatory, published September 1921.

The Commission completed its work in 1922 by publishing reports covering coal, dairying, fisheries, industrial alcohol, milk, peat, stock breeding and water power. Then the Civil War inevitably disrupted much further progress until a relatively stable government was established.

In 1934 the Industrial Alcohol Bill³ was tabled before the *Oireachtas of Saorstát Eireann* by the Minister of Industry and Commerce, *Sean Lemass*. It was interesting to note that *Dr. Seamus Ryan*, late of Kindlestown Farm, Greystones, County Wicklow, was Minister for Agriculture at the same time.

These articles were introduced on foot of the Control of Manufacturers Act 1932. The Industrial Alcohol Act, 1934⁴ came into force on 13th September that year. Its purpose was to:-



FIGURE 1: SEAN LEMASS

“... make provision for the production and sale by the State of Industrial Alcohol and for the restriction and control of the manufacture of Industrial Alcohol by persons other than the state, and to provide for other matters connected with the matters aforesaid, including the compulsory acquisition of land and the construction, maintenance, and operation of transport works.”

Section 4. allowed the Minister to engage contractors to undertake the works.



FIGURE 2: DR JAMES RYAN

Section 12. of the Act required every Importer to report to the Minister the quantity of hydrocarbons and light oils imported during the previous period.

³ Industrial Alcohol Bill, 1934 was document tabled for discussion during 1934.

⁴ Industrial Alcohol Act, 1934 was document 40 of 1934.

Article 13. Required the Importer to purchase an equal quantity of the Industrial Alcohol produced by the Minister at a price set by the Minister.

Section 14. restricted the manufacture of industrial alcohol to the Minister or to such persons licenced to do so by the Minister.

Section 15. required the Minister to establish an Advisory Board to be known as the Industrial Alcohol Advisory Board to advise the Minister as experts on the production of Industrial Alcohol.

Section 17. required the *Minister* to report annually to the *Oireachtas* his progress and outlay during the financial period. The reports still exist and form an interesting source relating to the progress of the project.

Project progress

31st March 1935

1. Notes that the Act came into operation on 13th September 1934.
2. *“An agreement was entered into with Messrs. Noury & Van der Lande's Exploltatie Maatschappij N.V. of Deventer, Holland, for the carrying out of the several matters specified in Section 4. (sub-Section 2) of the Act.”*

From another source⁵ it is shown that *Noury & Van der Lande's* were an Architectural practice and *Jan Diederik Postma* was the supervisory architect for the project. The factories were destined to become the earliest industrial buildings in the International Modern style in Ireland.

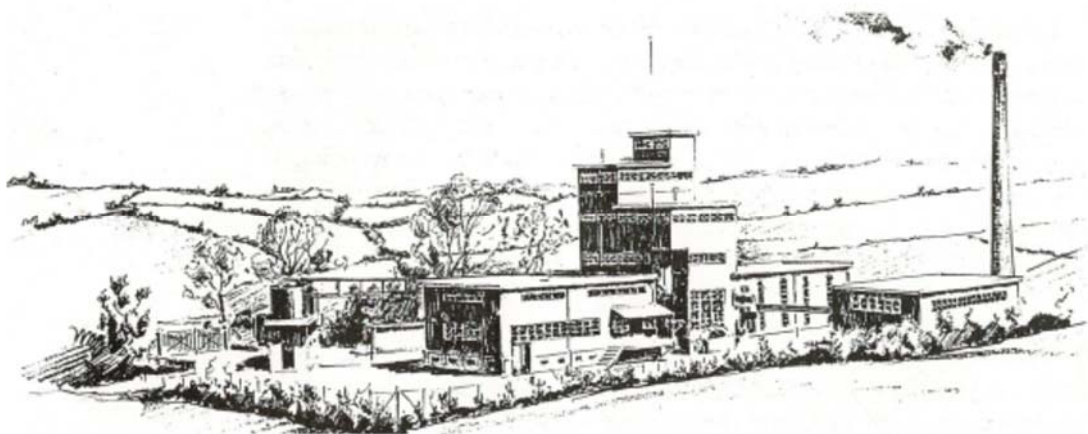


FIGURE 3: 183 ALCOHOL FACTORY AT CO. MONAGHAN, 1935- 8; ARCHITECT J.D. POSTMA. PERSPECTIVE DRAWING BY J.D. POSTMA. COURTESY J.D. POSTMA (JUNIOR), ARCHITECT, DEVENTER, HOLLAND.

3. Sites for the erection of five distilleries capable of a total output of about six hundred and sixty thousand gallons of Industrial Alcohol per year were selected, one in Co. Louth, one in County Mayo, two in County Donegal and one in County Monaghan.

I understand the 1922 recommendations had included an observation of the surplus potato crop that had occurred in these counties and noting that they could be used as feed stock for the manufacture of industrial alcohol.

⁵ Dictionary of Irish Architects 1740 - 1940

4. The preliminary technical and other operations incidental to the preparation of the plans and specifications for the buildings and the installation of the necessary plant apparatus and equipment were completed.

The preliminary surveys would also have noted the availability of the potatoes, fuel, and water sources with possible routes for incoming feedstock and outgoing product.

5. Five candidates for posts as Assistant Managers of the distilleries were selected on the recommendation of a Selection Board and arrangements made to have them trained abroad.
6. A statement showing the expenditure incurred under the Act during the period ended 31st March 1935, was annexed.

31st March 1936

1. In accordance with the provisions of Section 15 of the Industrial Alcohol Act, 1934, the Minister by Order dated 20th June 1935, established an Industrial Alcohol Advisory Board.
2. Following advertisement and the issue of invitations to tender, contracts were placed for the erection and equipment of five Distilleries at: -
 - Riverstown, Cooley, Co. Louth.
 - Carrickmacross, Co. Monaghan.
 - Carndonagh, Co. Donegal.
 - Labbadish, Co. Donegal.
 - Corroy, Ballina, Co. Mayo.

The constructional work on the five sites was commenced last December and was proceeding satisfactorily.

[4]The description of the works given by *the Institution of Structural Engineers* in their publication detailing the important structures built in Ireland during the previous 75 years published in 1983 indicates that the contractors were *Skoda [Works]*. Internet searches show that Skoda Works, based in Pilsen, now in Czechia, were civil and mechanical engineers at the time.

3. Arrangements were entered into with the French firm of *Usines de Melle* to enable their patent process of distillation to be used in the five distilleries.

The *Coffey*⁶ distillation column, then in common use, would only produce a maximum purity of 94% for the alcohol because the chemical bond of the alcohol with water could not be broken by normal distillation. This is called an Azeotrope of the Alcohol and requires a secondary process using an alternative carrier to water. *Benzene* was commonly used until it was found to be carcinogenic and now *Toluene* is used that appears to be more economic and safer. This was the essence of the Usines de Mille patent process. Pressure-swing distillation can also be used.

4. Five candidates selected on the recommendation of a Selection Board for posts as assistant Managers of the Distilleries completed a course of training abroad.
5. A statement showing the expenditure incurred under the Act during the period ended 31st March 1936 was annexed.

⁶ For development history refer to the Annex titled Aeneas Coffey

31st March 1937

1. The work of construction and equipment of the five industrial alcohol factories begun in December 1935, was virtually completed by the end of March 1937.
2. Following consultation with the Commissioners of Public Works, contracts were entered into for the construction of roads, fences, and certain other auxiliary works on the sites of the factories. These contracts also had been practically completed at the end of the previous financial year.
3. Preliminary arrangements, which had been made with the French firm of *Usines de Melle* to enable their patent process of dehydration of alcohol to be used in the five factories, were embodied in a formal agreement.
4. Premises to serve as the Head Office of the Industrial Alcohol Factories were purchased at Merrion Square, Dublin.
5. A statement showing the expenditure incurred under the Act was annexed.

31st March 1938

1. The five Industrial Alcohol Factories commenced production during the year. The plant at Cooley, County Louth, was run for a short trial period in May and was re-started in November. Production began at Labbadish, County Donegal, in December, at Carrickmacross, County Monaghan, in January, at Carndonagh, County Donegal, in February, and at Corroy, County Mayo, in March.
2. On the 31st of March 1938, 211, 346 gallons of spirit had been manufactured, the quantity of potatoes used in the process being 9, 877 tons.
3. The basic price paid for potatoes during the year was £2 per ton for tubers having a starch content of sixteen per cent with an increase or deduction of 2d per ton for each deviation of one-tenth of one percent in starch content.
4. The sale price of the output of Industrial Alcohol to Petrol Importers and Refiners was fixed at 3/- per gallon.
5. The plants have each a guaranteed capacity of 660 gallons of absolute alcohol per day but in actual practice each unit has been found capable of an output of over 1, 000 gallons per day.
6. Consideration was given to the installation of equipment at the various Factories to enable molasses to be used as a raw material when potatoes were not available. Such an addition was made to the plant at Cooley during the year under review.

The molasses was imported but the by-product from the Sugar Beet Industry could have been an alternative.

7. A statement showing the expenditure incurred under the Act was annexed.

The factories

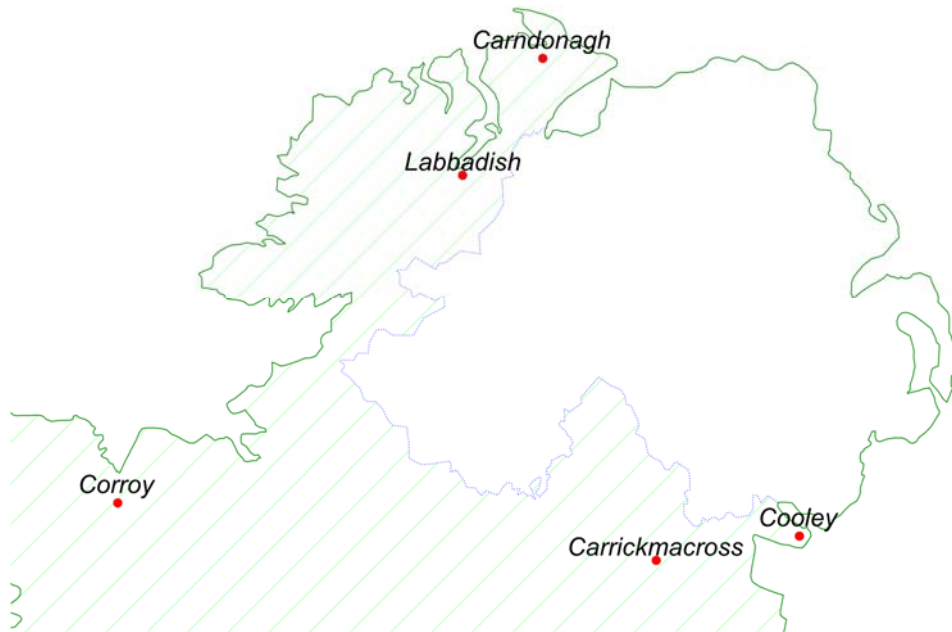
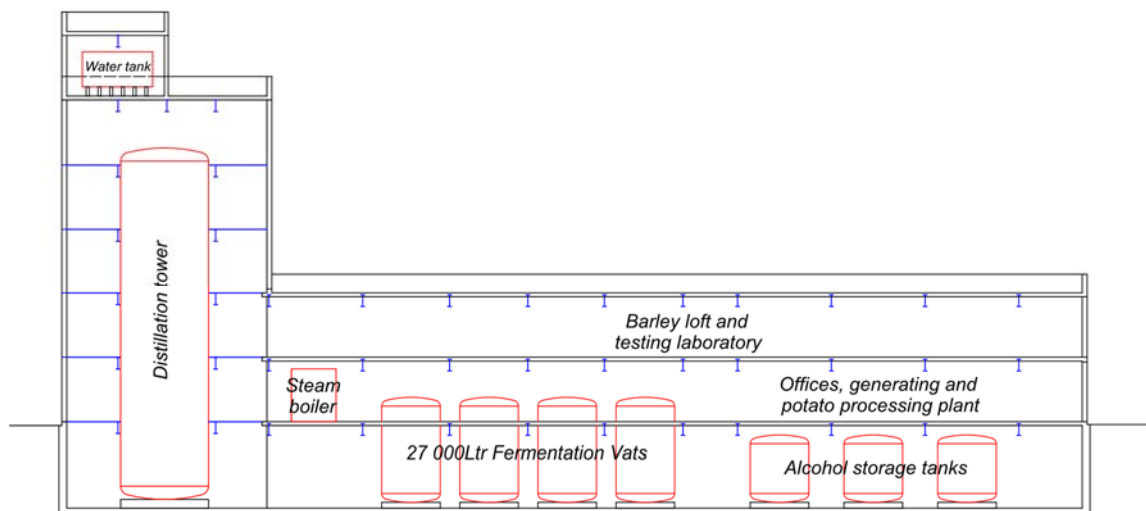


FIGURE 4: LOCATION OF THE ALCOHOL FACTORIES



Typical Alcohol Factory
[from description]

[4]The factories were all structurally similar, 52.0m x 10.0m in plan, composed of two storeys over a concrete basement with a five-storey distillation tower area topped by a water tank. The basement contained alcohol storage tanks and was 4.40m below the ground floor. A section of the ground floor was omitted at one end and this permitted nine 27,000 litre fermentation vats to protrude from the basement. The ground floor contained offices, generating, and potato processing plant. The first floor contained the barley loft and testing laboratory.

The structure consisted of a structural steel framework with in-situ concrete floors on steel beams, except in the tower where the floors were of steel plate.

The tower was clad in steel plate lined internally with breeze concrete.

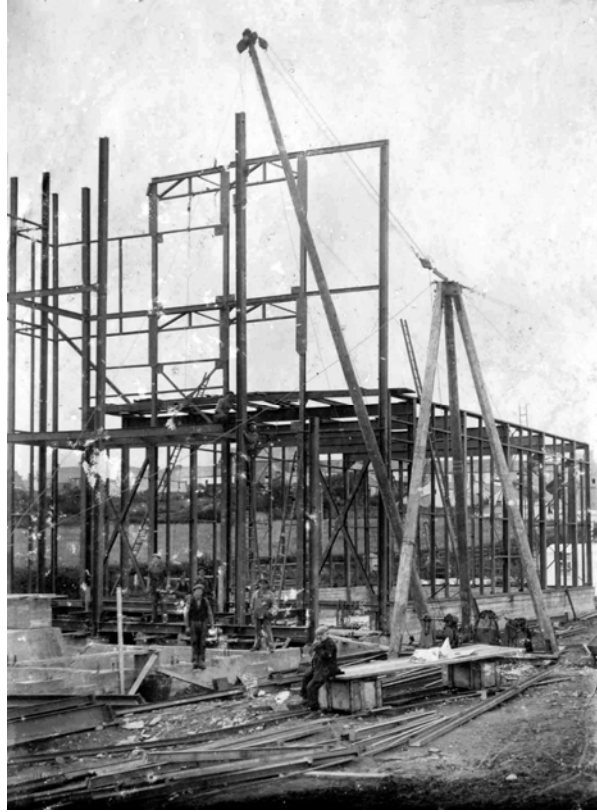


FIGURE 6: CARNDONAGH FACTORY UNDER CONSTRUCTION IN 1937 [14]



FIGURE 5: THE ARRIVAL OF THE STEAM BOILER 1937 [14]

There follows a synopsis of the history of each of the factories constructed for the initial purpose of reducing the stock of surplus potatoes and the manufacture of Industrial Alcohol:-

Corroy, Ballina

- 1935-37 Construction period
- 1938 March, started making Industrial Alcohol from potatoes
- 1954/55 replaced alcohol production with glucose production.
 - With second hand plant over 20 years old
- 1971 Feed stock changed to imported maize starch brought in through the harbour in Ballina; that was wholly dependant on this trade.
- 1979 £1.3 million investment for refurbishing the plant for glucose production:-
 - Replace unreliable machinery.
 - Improve efficiency of the process.
- 1983 Shutdown and business transferred to Wheat Industries.

Labbadish

- 1935-37 Construction period
- 1937 December full production of Industrial Alcohol started
- 1954/55 replaced alcohol production with potato starch production.
- 1971 closed through lack of potatoes.
- 1979 Plant in good order and carefully maintained.

Carndonagh

- 1935-37 Construction period
- 1938 February started making industrial alcohol from potatoes.
- 1971 Potable alcohol production began.

Carrickmacross

- 1935-37 Construction period.
- 1938 January, Alcohol production from potato feed stock started.
- 1955 closed; plant and buildings sold.

Cooley

- 1935-37 Construction period.
- 1937 May initial run for a trial production test to make industrial alcohol.
 - November restart for full production.
- 1971 Potable alcohol production began with a new production unit.
- Refurbished in 1977.
- 1979 refining imported crude alcohol.

Distillation

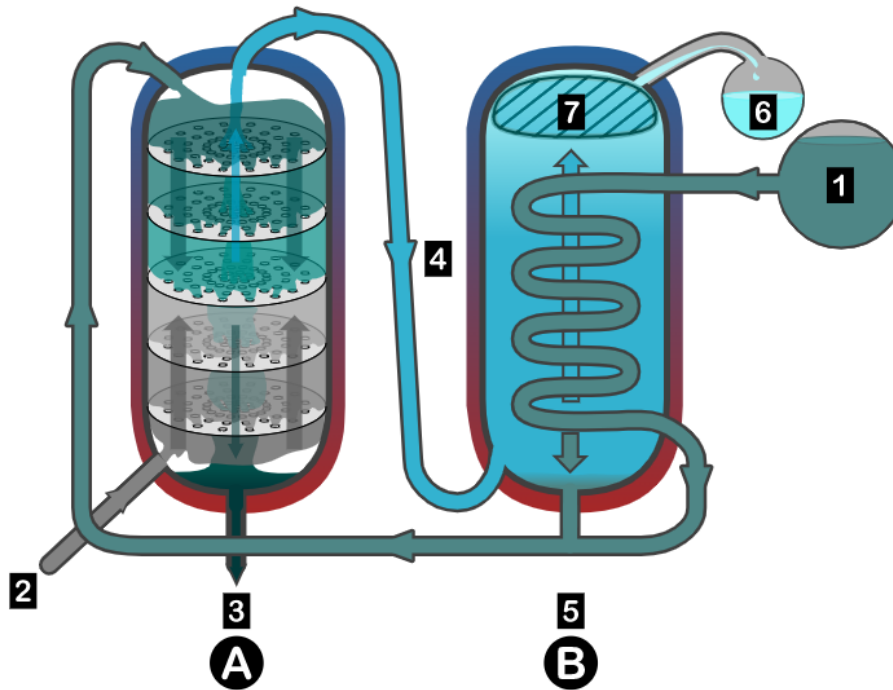


FIGURE 7: TWIN COLUMN DISTILLER (COFFEY PROCESS)

Legend:	
A. Analyser*	B. Rectifier*
1. Wash	2. Steam
3. Liquid out	4. Alcohol vapour
5. Recycled least volatile components	6. Most volatile components
7. Condenser	
<i>*Both columns are preheated by steam</i>	

The first column (called the analyser) in a column still has steam rising and wash descending through several levels.[1] The second column (called the rectifier) carries the alcohol from the wash,[2] where it circulates until it can condense at the required strength.

A continuous still can, as its name suggests, sustain a constant process of distillation. This, along with the ability to produce a higher concentration of alcohol in the final distillate, is its main advantage over a pot still, which can only work in batches. Continuous stills are charged with preheated feed liquor at some point in the column. Heat (usually in the form of steam) is supplied to the base of the column. Stripped (approximately alcohol-free) liquid is drawn off at the base, while alcoholic spirits are condensed after migrating to the top of the column.

A distiller remembers his time at Carndonagh [5]

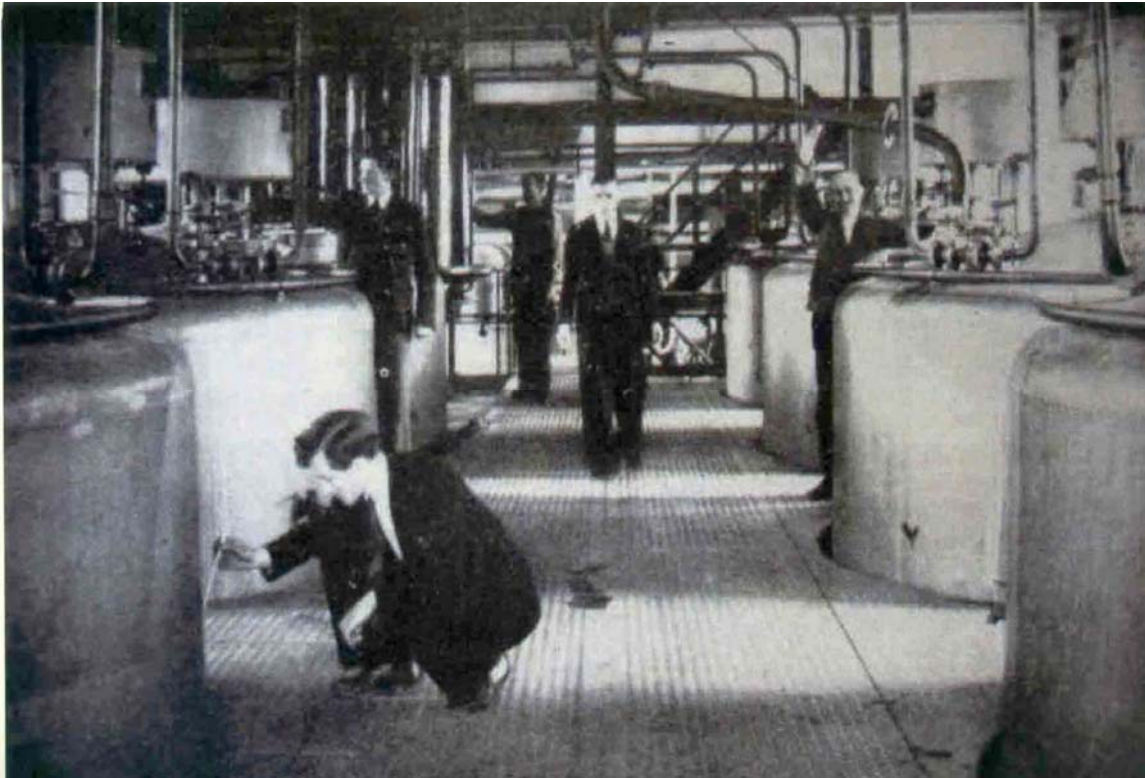


FIGURE 8: INTERIOR VIEW [5] [14]

[5] Denis Sheehan gave this account of his experience working in the Carndonagh Alcohol Factory:-

Denis was born in Cork in 1925. After secondary school he attended Crawford Technical Institute. It was there that he gained his technical qualification in Marine Engineering. This qualification was recognised by the British Board of Trade and Denis had hoped to get a job with Irish Shipping, this was not to be, and he found work at the Ford Motor Company.

Denis spotted an advertisement for the position of Distiller at the alcohol factories in a paper in Cork; he applied and was called for interview. He made the journey to Dublin for the interview with his friend who also had an interview. Denis was never in Dublin before, and he laughs as he recalls getting lost in Dublin the morning of his interview, but he made it just in time! Dr. Van Der Lee offered him the position there and then, he accepted, and in 1947 he went to work in the Cooley alcohol factory. After a month in Cooley, he was told he was Carndonagh bound.

The journey to Carndonagh was made with a customs officer who was also assigned to the Carndonagh alcohol factory. He recalls the turn off at Quigleys Point to Carndonagh, the barrenness of the landscape with hardly any houses and the wonder of what was in store for him. All they had to go on was the name of Sean O'Leary, a Carlow man, to contact on his arrival in Carndonagh. Sean had been sent to Carndonagh to re-open the factory after it was closed during World War 2. That night they were taken to O'Doherty's Hotel in the town to stay and after that they found different lodgings in houses around the town.

In 1948 Denis was moved to Carrickmacross and then on to Labbadish, and back to Carndonagh in 1954. Denis met his wife Violet when he was in Labbadish and they married in 1951. Violet is a Derry native, and her father was from Manorcunningham.

Violet recalls, with a 2 week old baby, how they were moved from Labbadish to Carndonagh and how hard this was with such a young baby and how difficult it was to find a place to stay in those days. When they were moved to Carndonagh in 1954, they knew they wanted to make roots in this area and also, they wanted to remove the uncertainty of being relocated at any time. With this in his mind Denis worked to get a company loan to build a house. This was not common at this time, but they were granted the loan. This housing loan brought great happiness as they knew they were secure in Carndonagh as their permanent base to work, live life and to raise their family.

Work at the Alcohol factory in Carndonagh was very hands on, it was a very happy place to work, and employees got great job satisfaction. The factory operated 24 hrs a day. When it was in operation there were numerous nationalities that passed through, as students on exchange visits, from the Irish to the Swedish, German & Japanese to name but a few. At its peak there were approximately 30 people employed, jobs included Maltser, Assistant Mashers, Shift Managers, Still Attendants, Boiler Men, Boiler Men Assistants, Lorry Drivers, Yard Men, Office workers and the Custom & Excise Officers were on top of that. In 1986 Ceimicí Teoranta went in to voluntary liquidation and subsequently ceased operation, it came as a great shock to the employees and to the area.

When in full operation the Carndonagh Factory had two separate plants. Materials such as potatoes or molasses etc. required for the processes carried out in the factory were ordered by head office in Dublin, suppliers were required to bring an order number and delivery date document with them otherwise they were turned away. At the start the factory produced methylated spirits; this product was used by oil companies for making their own products. Later on, a separate plant was established in the factory to produce potable or neutral spirit that was supplied to large drinks companies who used this in the production of their products. Unlike the absolute spirit which went through a process of methylation to convert it into Power Methylated Spirits (PMS) before sale to oil companies the neutral spirit remained under revenue control. With this, constraint credit must be given to the management and staff of the Londonderry and Lough Swilly Railway (L&LSR) who played their part along with H.M Customs in Northern Ireland to enable a bond to be obtained to facilitate neutral spirit to be transported through Northern Ireland to Dublin. The processes carried out at the Carndonagh Factory were very scientific and needed complete accuracy with cleanliness crucial at all times. After the processes were completed and the goods produced the customs officer at the factory took control of them and their dispatch.

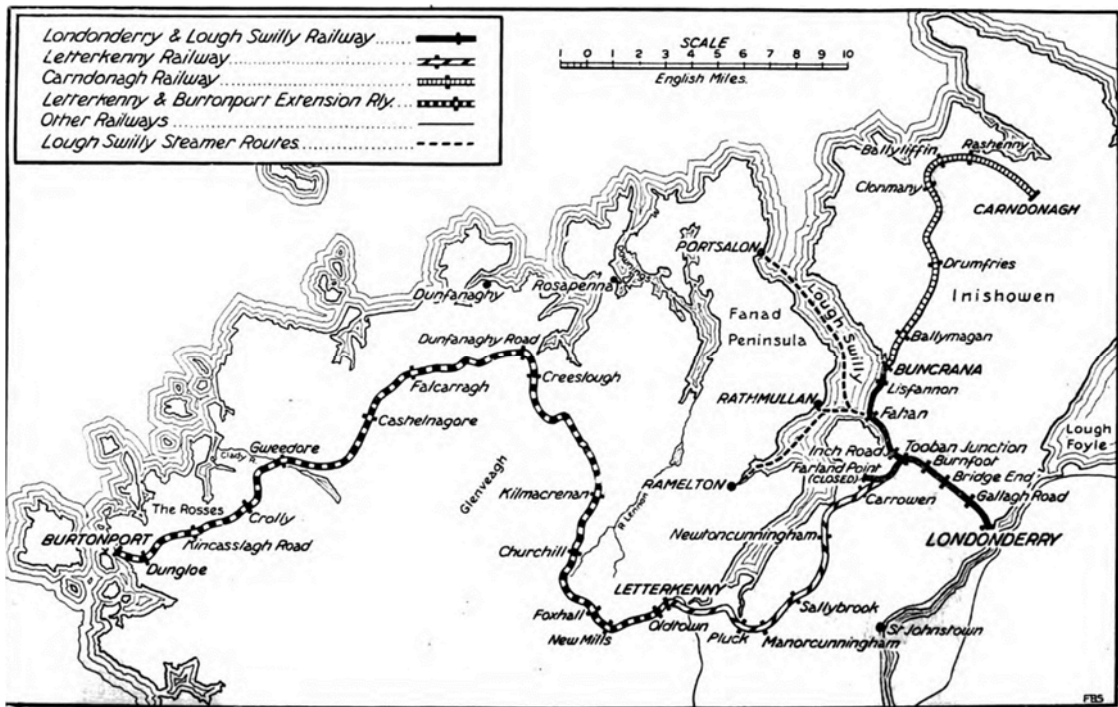


FIGURE 9: THE RAILWAY SYSTEM IN DONEGAL

The Carndonagh line was run by the Londonderry and Lough Swilly Railway (L&LSR) but the Carndonagh section was closed down around 1935. The alcohol and fuel must have been carried by lorry on the roads to and from the nearest rail yard.



FIGURE 10: THIS LORRY SERVED THE CARNDONAGH FACTORY IN THE 1930S

Alcohol Business

It has been noted that the Minister in his report to the *Oireachtas* included a statement showing the expenditure incurred under the Act for each period and this would detail the starting capital expenditure on the Industrial Alcohol Project; shown in Figure 11.

Detail	1935	1936	1937	1938	Totals £
Payments to Contractors	7 845,56	28 164,00			36 009,56
Salaries and Wages	1 628,19	3 696,23	6 587,66	16 062,58	27 974,67
Travelling Expenses	302,99	387,81	412,06	2 054,28	3 157,14
Miscellaneous Expenditure	26,76	1 063,90	1 693,00	5 715,35	8 499,01
Acquisition of Lands and Buildings			2 891,52	37 643,70	40 535,21
Patent Rights			5 500,00		5 500,00
Payments under Contracts and expenditure incidental thereto			122 796,84		122 796,84
Purchase of Raw Materials Fuel, Motor vehicles and Miscellaneous Equipment			795,56	25 944,32	26 739,88
Payments to Technical Advisers				8 391,25	8 391,25
Plant & Machinery				4 800,00	4 800,00
				27 634,96	27 634,96
Total	9 803,51	33 311,94	140 676,65	128 246,43	312 038,52

The Total value at 2021 prices is €5 035 160

FIGURE 11: EXPENDITURE UNDER THE INDUSTRIAL ALCOHOL ACT 1934

FACTORY	Cooley	Carrickmacross	Carndonagh	Labbadish	Corroy	TOTALS
Quantity Potatoes Bought [tonnes]	4 739,6	1 881,9	839,3	2 795,9	0,0	10 257
Value Potatoes Bought [€]	144 282,84	56 358,93	25 054,37	80 017,86	0,00	305 714
Quantity Alcohol Produced [Ltr]	512 779,0	202 764,0	76 474,1	263 890,5	0,0	1 055 908
Value Alcohol Produced [€]	272 960,89	107 934,69	40 708,43	140 473,37	0,00	562 077
Number of Wage-Earners Employed	37	33	30	31	0	131
Length of Working Season [Days]	106	61	23	71	0	261
Total Amount of Wages Paid [€]	24 119,39	12 216,05	5 338,68	13 594,48	0,00	55 269
Weight converted T.c.q to Tonnes [2240lbs to 1000kg] at			1,01818			
Irish pounds to Euro at			1,26974			
Inflation rate at 3% from 1935 to 2021 =			12,70578			
Gallons to Litres =			4,54607			

FIGURE 12: DECLARED STATE EXPENDITURE

From written answers in the *Oireachtas*, 4th July 1939, we find the State Company name was *Monarchana Alcóil na h-Eireann Teoranta* and it had a share capital of £500 000. Of which the State held £18 000 and £7 was held elsewhere. The organisation became a Public Company on 20th March 1939.

Additional information given in the Dial written answers were:-

- The production of Industrial Alcohol for the year to 31st March 1938 was 207 199 gallons [941 941Litres] worth £31 079 17s [€501 412 at 2021 values]
- The corresponding figures to the 20th March 1939 was 560 015 gallons [2 545 867Litres] valued at £84 602 5s [€1 364 891 at 2021 values]

Financial records

TABLE 1: FINANCIAL FIGURES PUBLISHED

Year	1969	1970	1972	1972	1973	1977	1978	1979	1980	1981	1982	1983
<i>Inflation based on 2021</i>	4,6509	4,5154	4,2562	4,2562	4,1323	3,6715	3,5645	3,4607	3,3599	3,2620	3,1670	3,0748
<i>Present day Sales [€]</i>	5 520 897	6 026 901	7 949 276	7 346 800	8 700 223	20 221 889	22 566 951	25 354 868	26 008 232	36 609 770	40 340 086	33 930 507
<i>Present day Profit after tax [€]</i>	76 753	212 578	96 050	490 169	560 105	2 451 132	689 347	816 246	1 859 521	2 176 440	868 585	289 409
<i>Profit as percentage of sales</i>	1,39%	3,53%	1,21%	6,67%	-6,44%	-12,12%	3,05%	-3,22%	-7,15%	-5,94%	2,15%	0,85%

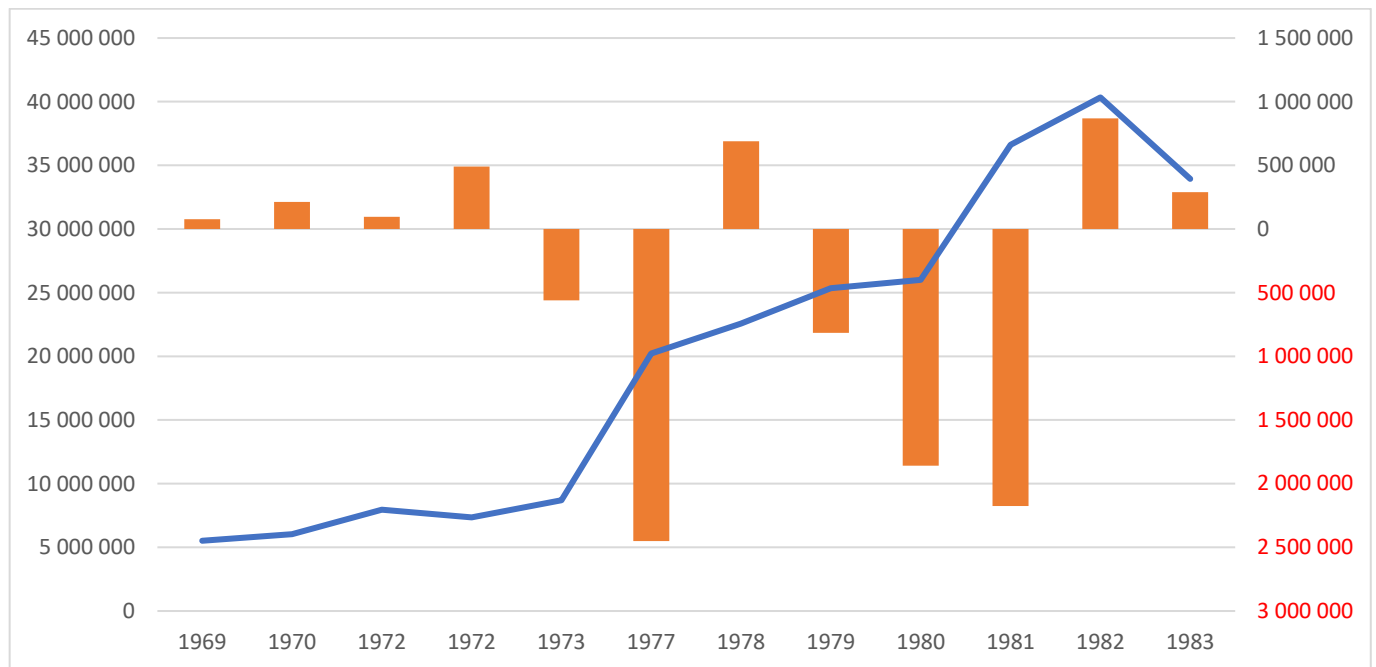


FIGURE 13: SALES AND PROFIT AFTER TAX

The blue line in Figure 13 shows the value of the sales, in Euros per annum based on 2021 values, against the left-hand axis for most years between 1969 and 1983 on the bottom axis. The orange columns of the histogram show the profit after tax for the same years in 2021 Euro value against the right-hand axis.

Products

We have seen that the original idea was to make good use of a surfeit of potatoes produced in the Northern part of Ireland. Problems arose because the supply of potatoes reduced, and a replacement feedstock was sought by the company. Molasses was the first to be used and then another source of natural starch was tried in the form of milled maize. In the end starch from wheat was tried.

Molasses may have been available from the sugar beet industry growing up in Ireland at about the same time, but the feed stock was imported. Maize was not grown in Ireland and the importation proved difficult due to import tariffs and international trading problems.

Alcohol

The alcohol is actually *Ethyl Alcohol* or *Ethanol* with a molecular formula of C_2H_5OH and is manufactured from a natural product with a high starch content; in this case the potato, molasses, or maize by mashing in water then fermenting at moderate temperature with the introduction of a yeast that induces a catalytic enzyme reaction to produce a wash of vegetable residue [biomass], alcohol, and water. The biomass can be removed by settling or filtering prior to heating up the filtrate and passing through a distillation tower to separate the alcohol from the water. The final 4% of the water is removed these days by a secondary distillation process utilising *toluene*.

Industrial

Industrial alcohol, or Power alcohol is produced in the same way, but the alcohol is then passed through a methylation process that introduces a purple colouration and makes it unpleasant as a drink. In commerce it is added to petroleum products and used to lighten oil-based products.

Potable

The alcohol is nearly tasteless and is dangerous to drink in its natural undiluted state. It is used to make other drinks such as whiskey, vodka, gin, and liqueurs; proportioned to give the expected taste and alcoholic human response with fluids from other sources.

Glucose

Glucose in powder or syrup form is used in many applications and is classed by the World Health Organisation as an essential health product. Glucose has a molecular formula of $C_6H_{12}O_6$ and is extracted from similar starchy feedstock in a similar way to alcohol but using a slightly different yeast.

Starch

Starch with a molecular formula of $(C_6H_{10}O_5)_n + (H_2O)$ can be used as a feedstock to produce alcohol, and glucose or separated from the biomass in the feedstock to produce starch in powder, liquid, or paste form for use in other preparations or processes.

1947 Amendment Act

This Act referred to as the Industrial Alcohol (Amendment) Act, 1947, was provided to change the name of the Company and extend its objects.

The company name became *Ceimici Teoranta*; and its objectives were increased by the following addition to the articles:-

- "(e) that the principal objects of the Company shall include-*
- (i) the manufacture, refining and sale of industrial alcohol and products and derivatives thereof, and*
 - (ii) the making, aiding or subsidising of experiments, investigations, researches, and tests in relation to the possibilities of the manufacture of any substance, all or any portion of which is produced or obtained by chemical process, and*
 - (iii) the manufacture and sale of any substance, all or any portion of which is produced or obtained by chemical process."*

The original sources of surplus potatoes were dwindling, and the company had been searching for alternative feed stock sources to manufacture the alcohol economically.

1979 Joint Committee Report [6]

This committee was a joint committee made up of representatives from the *Senate* and *Dáil* of the *Oireachtas*; and was chaired by *Senator Eoin Ryan Senior* [son of *Dr James Ryan*]. They took evidence from directors of *Ceimici Teoranta* [7].

In the conclusions to the committee report the following points are made: -

... conscious of the good work done by the Company in its earlier years in utilising a surplus potato crop for conversion into industrial alcohol and must pay tribute to the adjustments which the Company made when the original feedstock disappeared. ...

... carefully examined the three different operations on which the Company is now engaged viz. industrial alcohol, potable alcohol, and glucose, and the financial results of these operations over the past five years ...

... For the reasons set out in the separate chapters of this report dealing with these three commodities, the Joint Committee feels that in each case, the viability of the operation is left open to doubt. ...

... the opinion that further State investment in the Company should not be made without a fundamental reappraisal of the Company's role. ...

... recommends that such a reappraisal be undertaken by the Department of Industry, Commerce and Energy as a matter of urgency. ...

Ireland had joined the European Economic Community in 1973 and the era of protectionism was ending; trade tariffs were disappearing; State intervention was being removed. Free market trading was expected but it was rumoured many nations were not abiding by the rules of trade leading to imbalances in economic viability.

1980 Amendment Act

Following on from the Joint Committee Report the Industrial Alcohol (Amendment) Act, 1980 was passed on 23rd December 1980. The explanation document published with the proceeding Bill gives the following explanation of the changes included in the Act:-

The main provisions of the present Bill are—

—to provide for an increase in the authorised share capital of the Company to £10,000,000 (section 10).

—to provide, as a consequence, a similar increase in the value of shares which the Minister for Finance may take up (section 2).

—to provide for Ministerial Guarantee of borrowings by the Company up to a limit of £10,000,000 (section 3).

... Sections 5, 6 and 7 of the Industrial Alcohol (Amendment) Act 1947 which impose a restriction on the manufacture by Ceimici Teo. of certain chemical products in that a manufacturing licence would have to be obtained by the Company are being revoked. It is considered that the retention of these provisions could have a restrictive effect on possible joint ventures by Ceimici Teo. with private enterprise.

Section 8 of the Industrial Alcohol (Amendment) Act, 1947 which imposes a restriction on the importation of chemical products is also being revoked, as its provisions are considered contrary to our EEC commitments (section 12).

1983 Joint venture

In his financial report for year ending 31st December 1983 the chairman of the board directing *Ceimici Teoranta* states:-

Glucose

The market for glucose syrup held up very well in 1983 considering the difficulties which the confectionery industry had been experiencing. With sales of 13,816 tonnes Ceimici succeeded in maintaining its share of the market. 1983 was notable for the termination of Ceimici's glucose activities, with the consequent shutdown of the Corroy factory at the end of the year and the transfer of the glucose business to Wheat Industries Limited. I am glad to be able to report that both glucose manufacture and sales continued at a high level of efficiency until the very end and enabled the glucose business to be transferred in an orderly fashion to our joint venture company. This was due in no small measure to the efforts of management and staff both in the marketing and production areas and I would like to record the Company's special appreciation for their efforts.

The redundancies resulting from the termination of the glucose business has had to be financed from borrowings and together with the final write-down of the Corroy plant, impacts heavily on the Company's financial results in 1983. We must however regard this cost as an integral part of the Wheat Industries Investment, which we feel will be fully justified in the light of our future profit participation in this company.

We are continuing to make efforts to identify a replacement industry for the Corroy site, so far without success. In many ways this location is not suited to a wet processing industry and a lack of infrastructural facilities mitigates severely against it. The company is conscious however of the social desirability of maintaining some manufacturing presence in a disadvantaged area with relatively few job opportunities and plans to continue its efforts to achieve a satisfactory outcome.

Wheat Industries Limited

The construction of this major facility in which Ceimici has a 40% shareholding was completed at the end of 1983 within schedule. It is very pleasing to note also that this £16.5m. investment was completed within the original budget. Commissioning of the plant commenced in early 1984 and is proceeding satisfactorily.

It is anticipated that full production will be achieved later this year. We have high hopes that Wheat Industries will become a major contributor to the agribusiness in Ireland and will become a significant profit contributor to Ceimici in the future. We believe that this joint venture between Ceimici and Fielder Gillespie Limited also provides a very good illustration of the potential that exists for co-operation between private industry and semi-state organisations within this country.



FIGURE 14: CARNDONAGH FACTORY IN 1983 [14]

1986 Liquidation

I understand *Ceimici Teoranta* went into voluntary liquidation during 1986 and in 1987 John Teeling bought and developed the Cooley distillery. Later selling the distillery to the *Suntory-Beam consortium*.

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Appendix

Aeneas Coffey [8] [9] (1780-1839)

Aeneas Coffey, Irish inventor, and distiller is reputed to have been born in Calais, France and soon moved with his family to Dublin, Ireland where he was raised.

He was educated at Trinity College, Dublin and entered the excise service around 1799–1800 as a gauger. He married *Susanna Logie* in 1808, and they had three sons over the next eight years: Aeneas, William, and Philip.

According to British customs and excise records, Coffey was a remarkable man with widespread interests and multiple talents who rose quickly through the excise service ranks. He was appointed sub-commissioner of Inland Excise and Taxes for the district of Drogheda in 1813. He was appointed Surveyor of Excise for Clonmel and Wicklow in 1815. In 1816 he was promoted to the same post at Cork.



FIGURE 15: AENEAS COFFEY IRISH DISTILLER AND INVENTOR

By 1818 he was Acting Inspector General of Excise for the whole of Ireland and within two years was promoted to Inspector General of Excise in Dublin, Ireland.

He was a strong, determined upholder of the law, but aware of its shortcomings. He survived many nasty skirmishes with illegal distillers and smugglers, particularly in County Donegal in Ulster and in the west of Ireland, where moonshining was most rife. On several occasions he proposed to the government simple, pragmatic solutions to rules and regulations which had hampered legal distillers. Not all of his ideas were accepted. Between 1820 and 1824 he submitted reports and gave evidence to Parliamentary Commissions of Inquiry on many aspects of distilling, including formalising the different spellings of Irish whiskey and Scotch whisky. His 1822 report was solidly backed by the Irish distillers. He believed in making it viable to distil legally, and illegal distilling might largely disappear.

He assisted the government in the drafting of the 1823 Excise Act which made it easier to distil legally. It sanctioned the distilling of whiskey in return for a licence fee of £10, and a set payment per gallon of proof spirit. It also provided for the appointment of a single Board of Excise, under Treasury control, for the whole of the United Kingdom, replacing the separate excise boards for England, Scotland, and Ireland. The 1823 Excise Act also provided for not more than four assistant commissioners of excise to transact current business in Scotland and Ireland, under the control of the board in London.

Aeneas Coffey resigned from government excise service at his own request in 1824.

Between his Dublin education and his work as an excise officer, Aeneas Coffey had ample opportunity to observe the design and workings of whiskey stills, as Ireland was the world's leading producer of whiskey in the 19th

century, and Dublin was at the centre of that global industry. This was how Coffey became familiar with a design differing from the traditional copper pot alembic still commonly used in Ireland, the continuous, or column, still. First patented by a Cork County distillery in 1822, the column still remained a relatively inefficient piece of equipment, although it pointed the way towards a cheaper and more productive way to distil alcohol. It was that last point that captured Coffey's imagination. He made his own modifications to existing column still designs, so as to allow a greater portion of the vapours to re-circulate into the still instead of moving into the receiver with the spirit. The result was more efficient, producing a lighter spirit at higher alcohol content. Coffey patented his design in 1830, and it became the basis for every column still used ever since.

His column still became widely popular in Scotland and the rest of the world outside Ireland, where it is known as the "Coffey still" or "Patent Still". Early Coffey stills produced spirits of about 60% or somewhat higher alcohol by volume concentration but still offered its operators outstanding advantages; its fuel costs were low, its output high (2000 gallons a day of pure alcohol was a good average, it needed less maintenance and cleaning than pot stills and because the still was steam-heated, there was no risk whatsoever of scorching, saving labour costs and distillation down time. Modern versions of the Coffey still can achieve much higher alcohol concentrations, approaching 95.6% alcohol. As alcohol forms an azeotrope with water at this concentration, it is impossible to achieve higher purity alcohol by distillation alone. The Irish distilling industry generally did not take up the Coffey still, but big urban distilleries in Scotland took it on for scotch, and in England it was taken on by the gin distilleries.

On his retirement from service, Aeneas Coffey went into the Irish distilling business. For a short time, he ran the Dodder Bank Distillery, Dublin and Dock Distillery in Grand Canal Street, Dublin, before setting up on his own as Aeneas Coffey Whiskey Company in 1830. The development of the Coffey still made distillation of his own whiskey much more economical.

Nothing is known of the final years and last resting place of Aeneas Coffey. His eldest son, also called Aeneas Coffey, emigrated to South Africa, and managed a distillery. Aeneas Coffey junior married but his wife died childless. He returned to England and spent his final years near London.

Darrel Figgis (1882-1925)

Remembering 1920: A Dáil inquiry comes to Cork. [10]

One hundred years ago this week, a research inquiry set up by Dáil Éireann – six months previously – arrived to the steps of Cork City Hall.

The ensuing event coincided with another stand-off between individuals pushing for a republic and those upholding Ireland's place within the British empire.

On 18 June 1919 Dáil Éireann decreed the appointment of a National Commission of Inquiry into the resources and industries of Ireland. Subject to its report, it was planned to establish a National Exhibition of Irish Products and Manufactures and Resources, and that an appropriate figure of £5,000 would be made available for such an event.



Dublin man and Sinn Féin Honorary Secretary Darrell Figgis was appointed secretary of this national commission of inquiry.

Professor Mary Daly's work in the 'Atlas of the Irish Revolution' outlines that to attract support across a broad political spectrum, 60 experts were approached for their expertise from business, academia, county surveyors and labour leaders. Forty-nine agreed to share their perspectives.

Two broad areas were focussed on – food supply and power resources. The first public meeting of the Commission in Dublin was held on 2 December 1919 without any disturbance recorded.

On 22 January 1920, the Commission met at Cork City Hall. The Cork Examiner outlines that several policemen were in possession of the front portion of the building. Hence admission at the entrance fronting Albert Quay was denied to the members of the Commission as they were part of the outlawed Dáil Éireann (since September 1919).

FIGURE 16: DARRELL FIGGIS (CORK INDEPENDENT)

They, however, succeeded in baffling the police and got in by the door leading from the Corn Market side. They went in there one by one between ten and eleven o'clock. It was only at 12 noon that the police discovered that a sitting was being held within the building. Immediately the head constable and some police went to the room where the evidence was being taken and ejected the members of the commission.

On the same day a delegation from Westminster was due to meet in City Hall to gather its data on industrial resources and opportunities in the region. The delegation, with the Lord Mayor William F O'Connor (a Nationalist member) and the High Sheriff arrived a few minutes after noon.

As the lord mayor walked through the small crowd that had congregated on the quay towards the door of the City Hall, he was stopped by Darrell Figgis, secretary of the Dáil Éireann commission. Darrell asked him if it was not a fact that he had granted them the use of the hall for the purpose of holding an inquiry into the resources of the

country. The Lord Mayor said that was so and Mr Figgis then said that the police had forcibly ejected them and asked if this was done with the lord mayor's consent.

The lord mayor said that he had given no such order, and that as far as he was concerned, he desired that they should use it. The head constable intervened to say that he had orders not to allow them enter.

The diaries of Liam de Róiste MP and Dáil Éireann member outlines his involvement with the bringing of Darrell Figgis to Cork. His diaries can be read in Cork City and County Archives.

He met the group the evening before the inquiry meeting at their Cork hotel. He was present that evening when the head constable arrived and told the group the commission would not be allowed to sit at City Hall the following day.

It was Liam de Róiste, who had just been elected as a councillor during the local elections, who brought the group in a side door on the Corn Market side the following day.

After the group were told to leave City Hall, Liam brought the group to the Cork School of Art. He details that the delegation was about ten in number and amongst others included high profile Sinn Féin members and regional experts – Colonel Maurice Moore (retired Connaught Rangers Regiment commander and Sinn Féin member), Professor Alfred O'Rahilly (Cork Sinn Féin councillor and UCC academic), Roger Sweetnam (Sinn Féin MP), Professor Robert Tweedy (a prominent electrical engineer), Thomas P Dowdall (Cork IDA and butter and margarine manufacturer), Andrew O'Shaughnessy (Dripsey Woollen Mills), Edward Lysaght and Labour leader Tom Johnson.

Professor of Agriculture at UCC Thomas Wibberley was the first witness who spoke about agriculture and milk production. He was an expert in tillage dairy farming, farm management and the production of animal foodstuffs.

After an hour of debate at the School of Art, a head constable and constable arrived and sat amongst the meeting for a time before they were replaced by two detectives. The commission went on undisturbed.

Mr Figgis and a farmer spoke about milk production. The meeting adjourned for lunch but on the group's return they found the door blocked by the police.

They then left intending to go the Crawford Technical School. Passing the Courthouse, Liam brought them into the Cork County Council offices. Some of the clerks there locked the doors and the sitting continued till 8pm. Evidence on meat, milk, wool and other products were taken.

The following day Liam de Róiste reports in his diary that the police occupied the Courthouse and the City Hall. The evidence on fish industries was taken at the delegation's Cork hotel. The police made a complaint, but the hotel upheld the view that persons not residing in the hotel would not be allowed in.

In the months ahead, further planned meetings across the country were scuppered by the War of Independence.

Eventually in 1922, the National Commission of Inquiry into the Resources and Industries of Ireland concluded its proceedings and published reports and elaborate maps on dairying, coal, industrial alcohol, milk, peat, fisheries, stock breeding and water power.

An Irishman's Diary [11]

Mon, Apr 21, 2008, 01:00

Frank Bouchier Hayes

AMONG THE items in the recent auction of independence related material at Adam's salerooms were a number of books written by a long-forgotten Irishman.

A little over 80 years ago, in late October 1925, his body was discovered lying on a bed in the gas-filled room of a London boarding-house. The man in question had been acknowledged as a writer of some distinction, having penned biographies of such diverse figures as George Russell and William Shakespeare. He had also worked as a freelance journalist, drama critic and playwright, before nationalist inclinations led him to support the Irish separatist movement.

In 1914 he took part in the famous gun-running events at Howth. For a brief period, he lived happily on Achill Island whose desolate landscape greatly influenced him. He was arrested and imprisoned after Easter Week 1916, again in February 1917 and finally in May 1918. On that occasion, he spent almost a year in jail. On his release, he was appointed secretary of the Commission of Inquiry into the Resources and Industries of Ireland by the newly constituted Dáil Éireann.

After the acceptance of the Treaty by the Dáil in 1922, he was appointed acting chairman of the committee which drew up the Free State Constitution. He was first elected to the Dáil in 1922 and retained his seat in the 1923 general election, albeit on a considerably reduced poll. Shortly before his death, he ran unsuccessfully as a candidate in the Seanad election.



FIGURE 17: DARRELL FIGGIS (FROM IRISH

Despite all of the above facts, no one has yet sought to produce even a slim volume on the remarkable life of Darrell Figgis, who was born in Rathmines in 1882 and worked as a tea buyer and broker in London and Calcutta until his writing career began. Indeed, he appeared frequently in the news pages or book sections of this newspaper from 1911 onwards.

Among the early news items was a 1913 review of a play entitled Queen Tara, which featured a strikingly named 20-year-old actor in a small role. Childhood memories of watching all the old Sherlock Holmes films came flooding back to me when I read that Dublin's Gaiety theatre could count Basil Rathbone among the many significant actors who had trod its boards.

As well as being the author of several highly regarded books, Figgis was a frequent contributor to the letters pages of various national newspapers and often suggested amendments to important pieces of legislation or asked probing questions of various ministers and deputies in Dáil Éireann. Not surprisingly, he also wrote two volumes about his prison experiences.

Figgis was perhaps influenced by Roger Casement's earlier work on behalf of impoverished Connemara people when he lent his support to a campaign to ease the plight of those suffering food shortages on Achill in February 1918. He wrote a letter to the Irish Independent to explain that Sinn Féin had arranged for potatoes to be sent

there, the Gaelic League had procured for him a supply of flour and a cheque donated by two ladies had ensured that "a portion of this flour is now being distributed free in cases of real indigence and need".

That same month, a humorous account of the guarding of ballot boxes for the South Armagh by-election, in which the Irish Party candidate easily defeated the Sinn Féin candidate, appeared in the Belfast News Letter. Apparently, not content that the ballot boxes locked in the strongroom at Newry Workhouse under police guard were fully safe, Sinn Féin supporters, led by Figgis, "carrying quantities of white tape and sealing wax, obtained permission to affix seals to the door of the strongroom and certain windows".

When the Redmondites heard what had happened, they did likewise, rendering the entrance doubly sealed. Still unhappy, the Sinn Féiners left four of their number behind to stand guard with the police. The episode reached a happy conclusion when the Redmondites followed suit, so that "eight politicians joined the armed policemen in their all-night vigil outside the strongroom".

On a more serious note, a wealthy English businessman, referring in 1917 to Irish deportees such as Figgis and future president Sean T. O'Kelly, remarked that "if gentlemen and men of culture like you can be shipped out of your country in this way without any charge, then there is something very wrong with the running of things in Ireland".

Several years later, in 1922, Figgis had some interesting points to make about unemployment which remain relevant today: "When men have been a certain length of time out of work. . .a despair is bred in them that is the most awful experience that man can know. That despair in time leads to vindictiveness. That vindictiveness leads in time to criminality in some cases, and sheer irresponsible destruction in others."

A poignant illustration that this was not perhaps confined to the ranks of the unemployed was made known to readers of the June 18th, 1922 issue of this paper when they learned that by several young men "acting under army orders" - ie, anti-Treaty republicans - had broken into Figgis's house and brutally cut off part of his beard. His wife, Millie, was so traumatised by this and other events of these troubled times that she took her own life in November 1923.

It is sad indeed to discover that in a memorandum stating how he wished his personal belongings to be disposed, Darrell Figgis wrote: "There are not many who will care to remember me." Sadder still is the fact that a subsequent relationship with a young dancing teacher named Rita North also ended in tragedy when she died following a miscarriage - a week before Figgis took his own life.

If only for the sake of acknowledging someone who was largely responsible for framing this State's first independent constitution, a biography of Darrell Figgis surely merits someone's attention.

Jan Diederik Postma (1890 – 1962)

Dutch architect, of Deventer, Holland, for whom see Sean Rothery, *Ireland and the New Architecture 1900-1940* (1991), 203-4. Postma was commissioned by the Irish government in 1934 to design a series of alcohol factories in Cos. Donegal, Louth, Mayo, Monaghan, and Sligo. According to Rothery the factories were the earliest industrial buildings in the International Modern style in Ireland.

[12]Dutch modern architecture made one direct contribution to Ireland in the 1930s. In 1934 the Irish government decided to build industrial alcohol factories throughout the country and commissioned the Dutch architect J. D.



Figure:184 Alcohol Factory, Carrickmacross. All of these factories still exist although with different uses. Early photographs used for advertising purposes in the Irish Builder show that the factories were originally painted in dark colours.

Postma (1890-1962) for the work. Postma attended courses at the *Technische Hogeschool* at Delft and later worked for the Dutch government and then in the firm of *J. J., M. A. and J. van Nieuwerkerken* in The Hague.

In 1919 he began practice in his own right and was associated with *M. van Harte*, whose commissions for industrial projects he inherited. Postma's industrial works included electricity plants at *Hengelo, Maastricht* and *Utrecht*, and silos for the *Société Industrielle et Commerciale 'La Nowrylande'* at *Venette (Oise)* in France.

Postma's career spanned the period of transition in modern Dutch architecture from the Expressionism of the Amsterdam School, through the influence of the *De Stijl* group, to the *International Style* of *Duiker, van der Vlugt* and *Buys*. His earliest published building, the Luxor cinema (Deventer 1918), was an exercise in early Dutch Expressionism. This was designed in partnership with *B. Hoogstraten*. It showed the influence of *Berlage* in the *Amsterdam Bourse* but was even closer in spirit to the famous *Sheepvaarhuis* of *van der Mey*.



Figure 18: Luxor Cinema/Theatre, Deventer, Netherlands by Google

Postma's own drawing of the *Alcohol Factory* at *Carrickmacross* does not do justice to the strong character of the finished building. The characteristic Dutch device of vertical contrasting with horizontal is displayed in the fenestration, but the functional piling up of the cubic shapes owes something to *Duiker* and *Bijvoet* in the *Zonnestraal* Sanatorium. The construction of the buildings was unusual for Ireland at the time: steel framing was used for the structure, while the cladding consisted of steel panels bolted on, with the bolts expressed.

Alcohol factories were built at Carrickmacross, Ballina, the Cooley Peninsula, Labbodish, Carndonagh and Convoy, the last three in Co. Donegal. Eoghan

Buckley and John O’Gorman designed houses for Excise Officers at the Ballina, Labbodish and Convoy factories. These were in the simple modern style typical of this firm. Flat roofs and white-rendered outside walls presented mainly blank surfaces barely slit by narrow horizontal windows. The alcohol factories, built between 1935 and 1938, were the first industrial buildings in the *International Style* to appear in the Irish countryside. The factory at Carrickmacross is largely as originally built, although now used for a different purpose, and can give some idea of the impact which these shiny machine—age symbols must have had on the quiet rural areas which they invaded.

Emil Skoda (1839 -1900) [13]



Emil Škoda was born in Pilsen on November 19, 1839 to a physician and politician František Škoda, and mother Anna Říhová. Škoda studied engineering in Prague and Karlsruhe and in 1866 became chief engineer of the machine factory of Ernst Fürst von Waldstein-Wartenberg, founded in 1859 at Pilsen. He bought the factory three years later, in 1869, and began to expand it, building a railway connection to the facility in 1886 and adding an arms factory in 1890 to produce machine guns for the Austro-Hungarian Army. His facilities continued to expand over the next decade, and he incorporated his holdings in 1899 as the Škoda Works, which would become famous for its arms production in both World War I and World War II and for a wide range of other industrial and transportation products.