

Table 1.2

PIONEERING CONTRIBUTIONS OF CEST/FISPA TO GAS CHROMATOGRAPHY

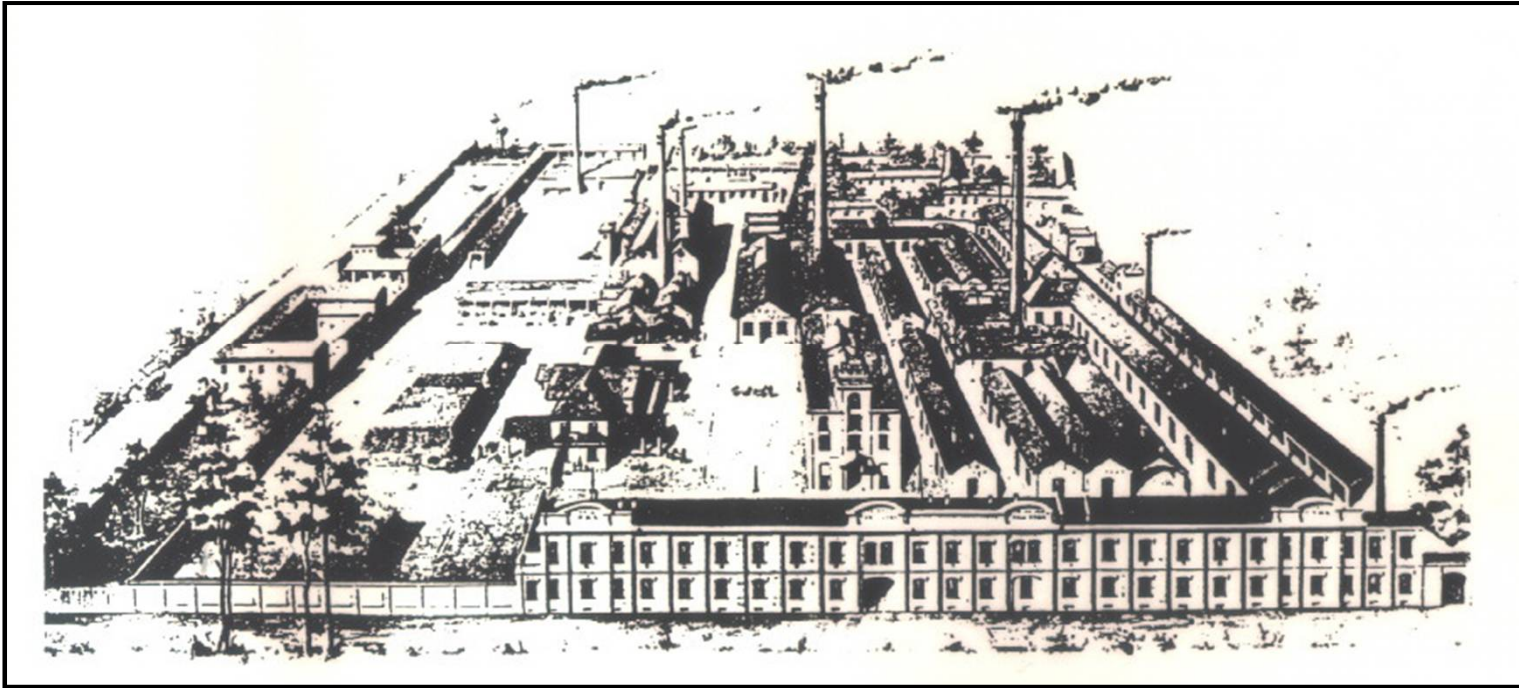
1956	Fractovap the first GC manufactured in Europe	1984	Autosampler for SSL and OC injectors
1971	Splitless (SL) injector for trace analysis by capillary GC	1985	First high temperature capillary GC columns and GC instrument
1975	First worldwide dedicated capillary GC	1986	First GC system for automatic large volume liquid injections into capillary columns
1978	Cold on column (OC) injector for quantitative capillary GC	1987	First O-FID oxygenates analyser Complete Micro HPLC system for microbore and packed capillaries Automatic and computerised SFC instrument for capillary and micropacked columns provided with tandem pumps
1979	First capillary dedicated GC with automatically actuated SSL and OC injectors and dedicated electronic and pneumatic systems Parallel and serial multiple detector system for capillary GC Automatic large volume head space sampling with on-column cryotrapping for capillary GC	1988	Automatic instrument for on-line SFE-GC/SFC
1981	Multinjector for 10 capillary sampling modes including programmed temperature vaporizing (PTV) injector	1989	Dualchrom: the first on-line HPLC-capillary GC coupled system (automatic and computerised instrument)
1982	Autosampler for thermal desorption and dynamic head space for capillary GC	1991	Variable geometry SSL vaporizing injector for eliminating discrimination
1983	Ultrastable GC oven for fused silica columns	1993	Universal autosampler for conventional and large volume injection
		1994	Ultratrace GC: automatic and computerized instrument for large volume sample injection into capillary columns

- 1948年: イタリア、ミラノのCarlo Erba社がGCの開発と製造開始
- 1956年: 欧州初のGCをFractovapシリーズをCarlo Erba社が発売
- 1975年: ワールドワイドでのキャピラリGCをCarlo Erba社が発表
- 1978年: Cold On-column注入口の定量用GCを発表
- 1996年: 欧州最大のGCメーカーであるCE Instruments (旧Carlo Erba社) がThermoグループに統合



A handwritten signature in cursive script, enclosed in an oval frame. The signature reads "Carlo Erba" with a decorative flourish below it.

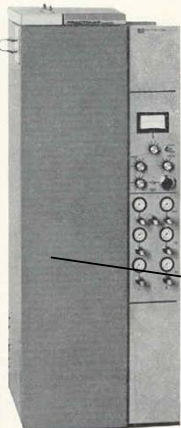
かれはカルロ・エルバです。
1800年代に欧州で活躍した化学者です。



1857年にできたミラノのカルロエルバ社の最初の製造プラントです。

FRACTVAPシリーズは1956年に発表された欧州初のGCです。

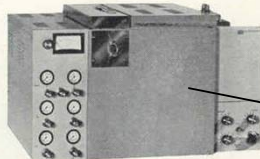
CROMATOGRAFI DA LABORATORIO



FRACTOVAP LINEA G
"Dual Column"

- Iniezione diretta in colonna
- Solo colonna dall'iniettore al rivelatore
- Operazioni multi-column
- Operazioni multi-detector
- Iniettore automatico di campioni solidi
- Gas cromatografi analitici e contemporaneamente preparativi

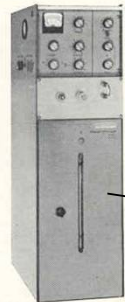
Per maggiori informazioni, richiedere DT 50/10 e DT 50/8



FRACTOVAP LINEA G
"Single Column"

- Iniezione diretta in colonna
- Solo colonna dall'iniettore al rivelatore
- Colonne capillari o ad impaccamento, in vetro o metallo
- Operazioni multi-column
- Rivelatori intercambiabili a ionizzazione
- 2 rivelatori in parallelo
- Iniettore automatico di campioni solidi

Per maggiori informazioni, richiedere DT FV GI




FRACTOVAP LINEA C
"Single Column"

Unità Analitica tipo ATC/t con rivelatori a termistori

Unità Analitica tipo ATC/l con rivelatori a filamenti

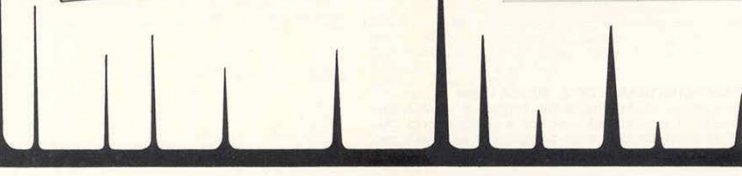
Per maggiori informazioni richiedere ST 50/3c



LIQUID-LIQUID CROMATOGRAPHY MONITOR

- Rivelazione diretta « in fiamma » per ottenere elevate sensibilità
- Microcatena continua a velocità variabile
- Completo di amplificatore elettrometrico e dei controlli del gas

Per maggiori informazioni, richiedere DT 50/R



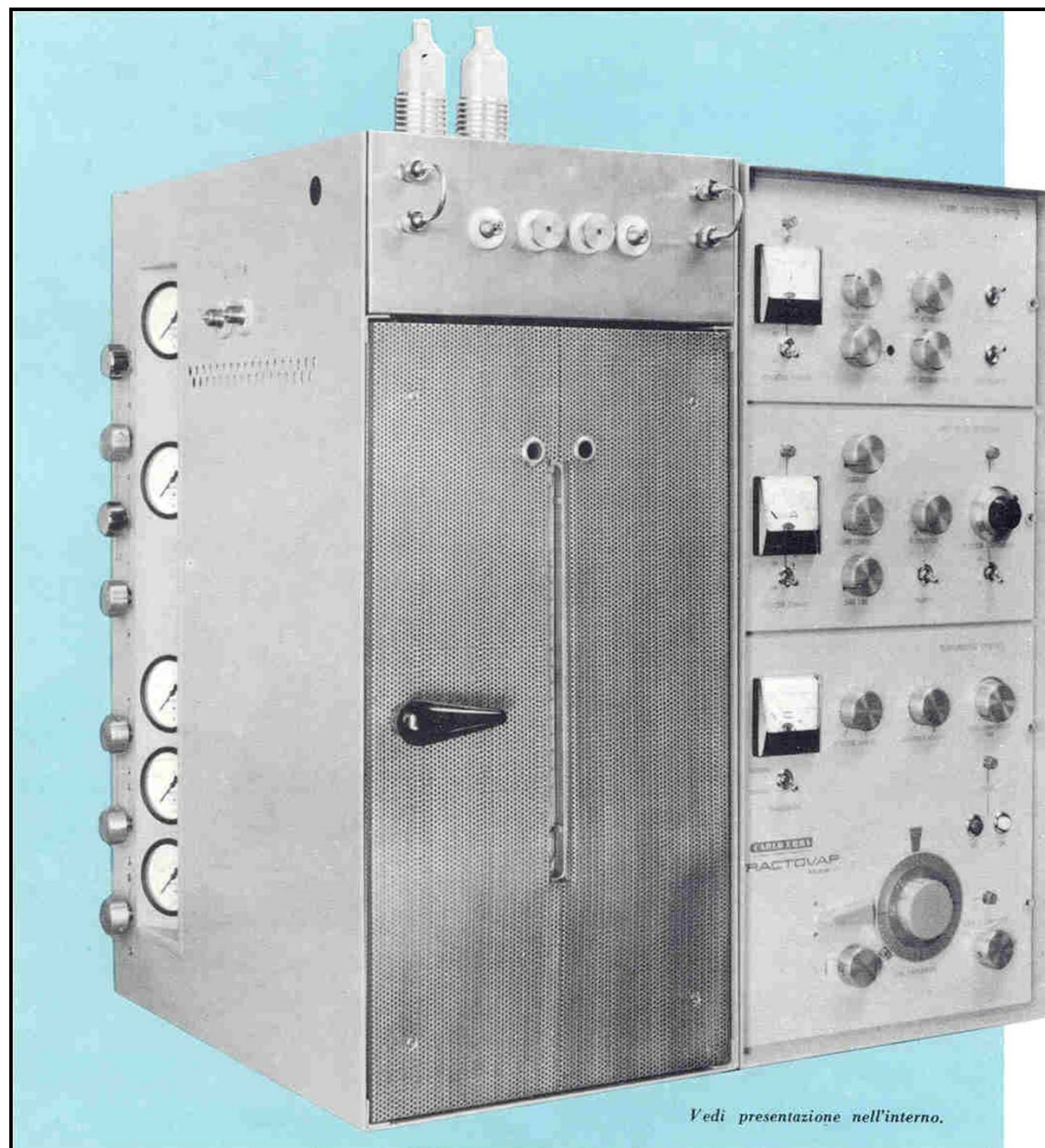
Fractovap G
Single packed column GC
with FID

Fractovap G
Dual packed column
GC with FID

Fractovap G
Vertical column mounting
Analytical and preparative GC

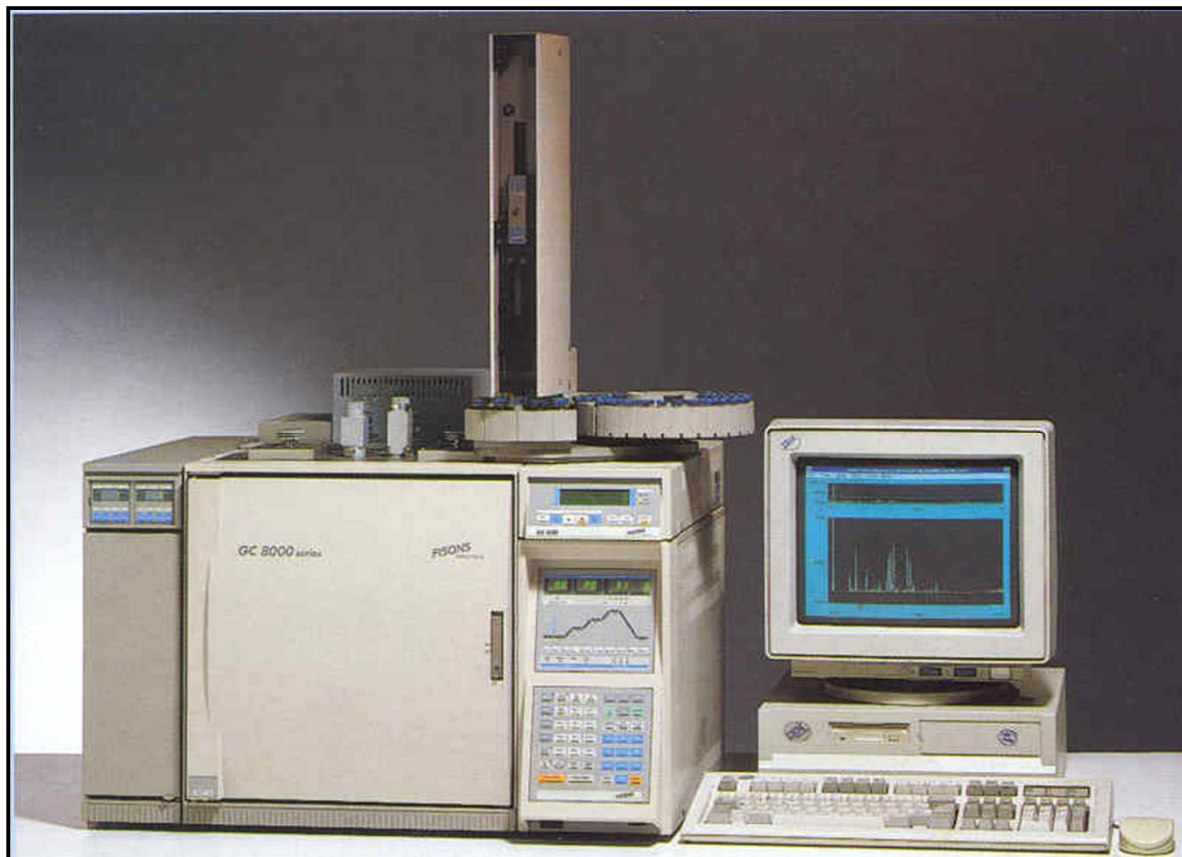
Liquid -Liquid
chromatography monitor
Flame based detector

Fractovap ATC
Only with thermoconductivity
detectors



Fractovap D

- Dual column
- Dual FID
- Dual TCD
- Temperature programmer



ULTRATRACE GC:

最初の

・コンピュータ制御

・大容量注入口

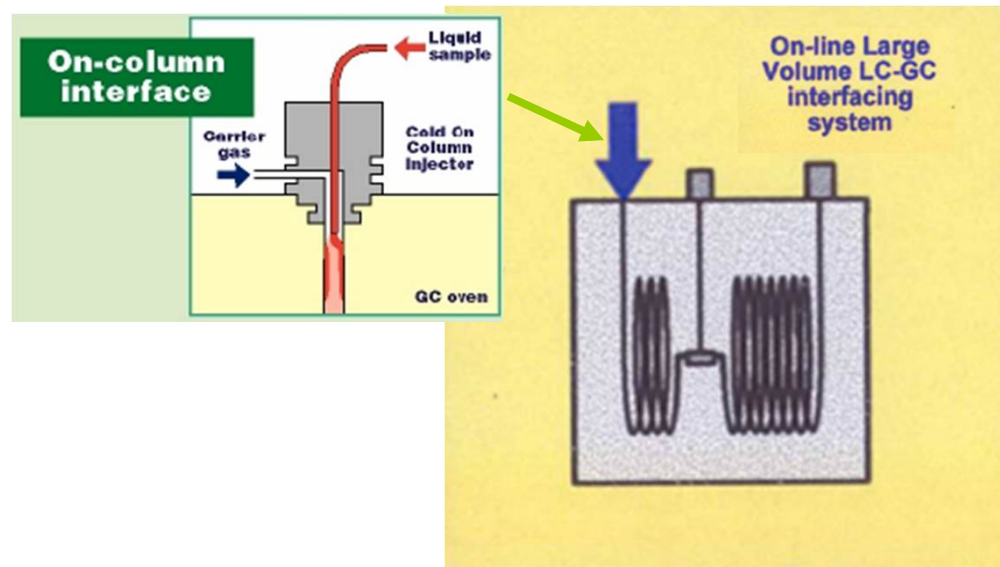
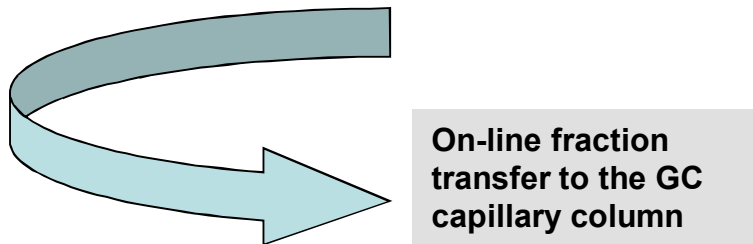
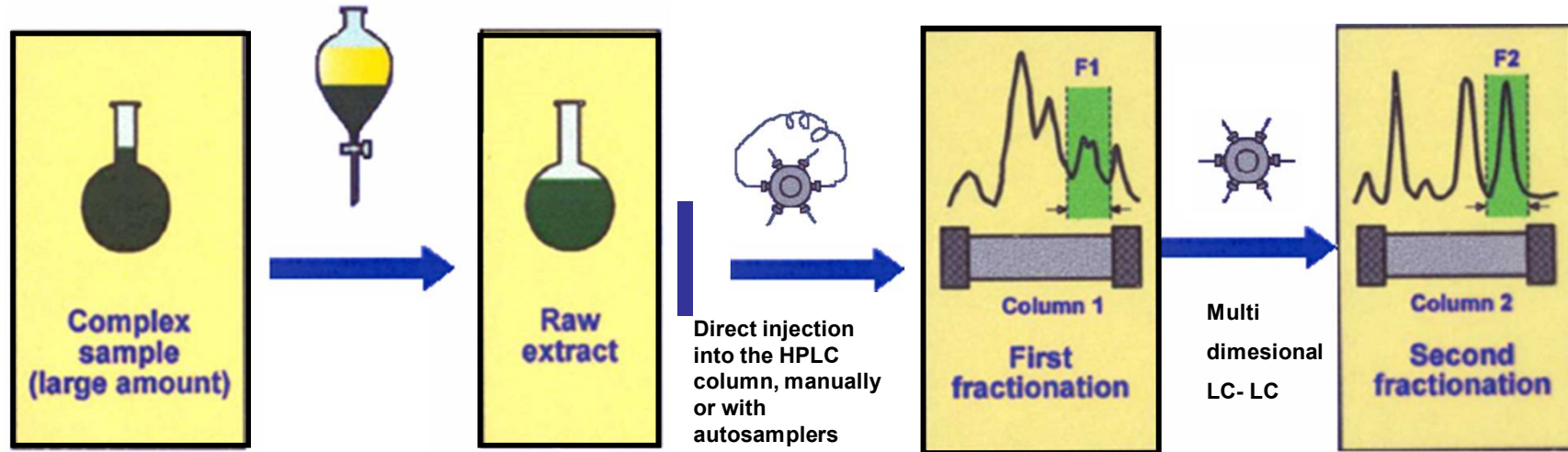
キャピラリカラム

のGCです。

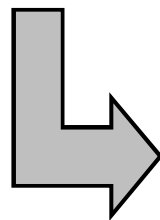
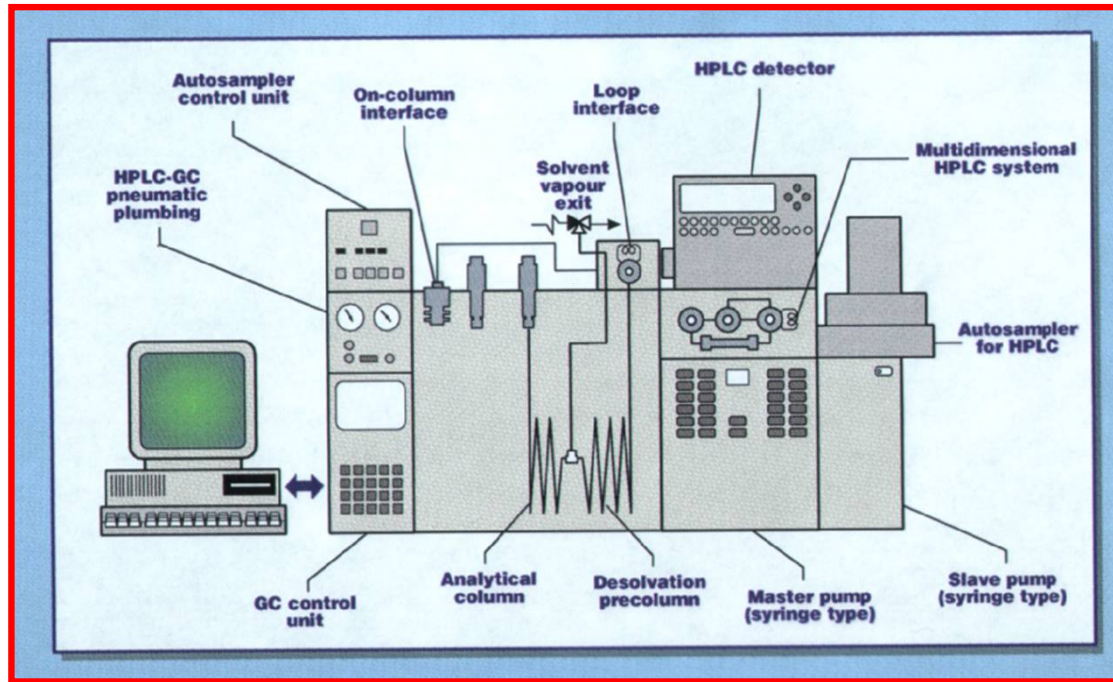
LC—GCの歴史

- 1980年代に考案されました。
- 大容量GCの技術からヒントをえました。
- 1989年にCarlo Erba/Fisons/Thermo 社が
Dualchrom 3000を製造開始

LC-GCによる前処理について



初の LC-GC



Dualchrom 3000

