

Figure. View of the main extraction unit

over a quarter of today's pharmaceuticals are of natural origin.

For many reasons, there now is renewed interest among the medical profession and the population at large in this class of products. *Nuova Linnea* intends to retain its leadership in this field and to contribute to its full development.

### Expanding Market

Through its Research and Development department, *Nuova Linnea* provides back-up for its full range of products. It also offers joint development with client companies for new products and derivatives of existing products. The company's commercial relations have expanded greatly in recent years, not just in Europe where it might be expected, but also in North and South America, Africa, and especially in Asia. *Nuova Linnea* is pleased to count among its clients some of the world's leading pharmaceutical companies.

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## Pharmanalytica SA\*

### An Offshoot of Sandoz Grown into an Analytical Centre of the Group

#### Location

*Pharmanalytica SA*, an affiliate of the *Sandoz* group, is located in Locarno (Switzerland) near the Lido on the bank of Lake Maggiore.

#### Looking back...

Founded in 1937, the company was producing, until 1974, drugs belonging to tuberculostatic agents, tranquillizers, and antihistamines for *Wander Ltd.*, Bern, as well as various active substances and intermediates for other firms. A pilot plant, a quality control lab, a development sec-

tion, and a sales department were part of the company, whose products were marketed worldwide.

During the early 70s the production was discontinued due to the growth of residential zones around the factory. As part of the basic reorganisation the firm came under the direct control of the quality assurance department of *Sandoz Ltd.*, Basel. The company was transformed into



Figure. Automation in the control lab for finished products with a robot in the foreground

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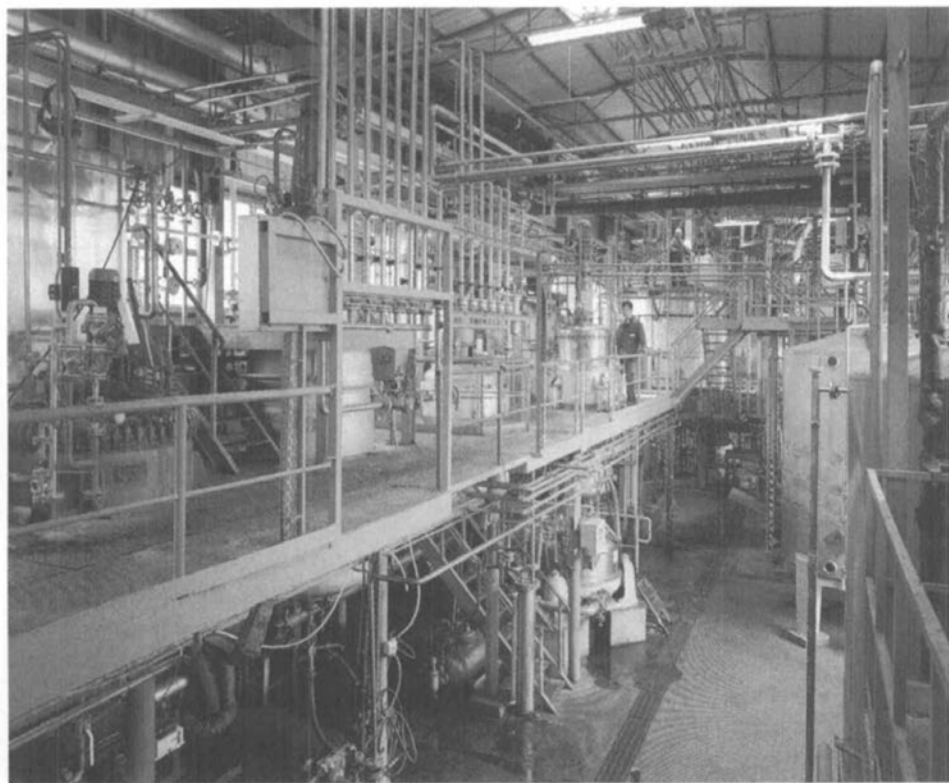


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an analytical quality control laboratory by setting up new labs and by retraining some of the staff.

### Activities

The day-to-day work of *Pharmanalytica* includes primarily the quality control of pharmaceutical chemicals and products of the *Sandoz-Wander* group according to internal *Sandoz* control procedures and various pharmacopoeias for both release analyses and stability studies (annually ca. 6000 batch samples are analysed). The activities extend to updating of *Sandoz* control procedures, training of personnel from other *Sandoz* affiliates and carrying out analytical work for third parties.

### Organisation

The firm is technically divided into three groups:

- Starting material section where raw materials, excipients and active substances are analysed.
- Dosage forms section where semi-finished and finished products are analysed.
- An automation group conducting content uniformity and dissolution tests.

An internal metrology group is in charge of the maintenance of the equipments and calibration of instruments and a

service team including an electrician and a mechanic carry out the repairs. The results of analysis of the samples received daily from Basel are transmitted from our client personal computers to the server computer in *Sandoz* Basel.

### Personnel and Training Programmes

Presently the company has a work force of ca. 60 people. All lab technicians (37) hold qualifications obtained either from a Swiss apprenticeship or from an Italian technical school; 20 of them have more than 20 years of experience in the quality control of *Sandoz-Wander* products; five employees hold university degrees and one an engineering diploma. All staff members are required to update their technical know-how by attending seminars, expos, refresher courses and various vocational training programmes in addition to job rotations within the *Sandoz* group and language courses.

### Equipment

As a result of the technical progress and the stricter requirements of health authorities, there has been lately a trend away from conventional time-consuming manual methods towards instrumental and automated ones enabling more reliable analyses. At the same time the job of the lab technician has become more special-

ised and requires instrumental skill and knowledge of electronic data processing as well.

*Pharmanalytica* is equipped with modern analytical instruments including 35 high performance liquid chromatographs, six gas chromatographs, a robot linked to a liquid chromatograph (shown in the *Fig.*) and 15 baths for dissolution tests, one of which is fully automated.

### Compliance

As an analytical centre for pharmaceutical chemicals and products, *Pharmanalytica* adheres strictly to the requirements of 'Good Control Laboratory Practice' as is certified by the 'Intercantonal Office for the Control of Medicines' (IKS) in Bern. *Pharmanalytica* also passed a recent inspection carried out by the 'U.S. Food & Drug Administration (FDA)'.

*Pharmanalytica SA* is an excellent example of how control laboratories on different locations (Locarno and Basel, distance more than 200 km) can be integrated, using up-to-date client-server-based information technology with a software (Q-DIS®: trademark of CREON Company, Bad Honeff, Germany) specifically designed for pharmaceutical quality assurance. Benefits of different locations (e.g. availability of work force, education, experience) are thus made available to support the success of the group.

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## Pharmaton SA\*

### Pharmaton Takes Its Pharmaceuticals from Nature

There is nothing new about medicinal plants. Their therapeutic and prophylactic properties have been known and applied since the earliest days of mankind. What is relatively new, is the ability to determine

scientifically what gives the plants these attributes, to isolate the corresponding active agents, to find the most effective, pharmaceutical and galenic form for their administration and to subject the resultant products to clinical testing.

*Pharmaton SA* has made its name in this field of phyto-pharmaceuticals. With a comprehensive programme of over-the-counter (OTC) specialities based on natu-

ral substances, *Pharmaton* has built up annual sales of almost 220 Mio. CHF in some 75 national markets. Though its head offices are in Lugano suburb of Bioggio, *Pharmaton's* products are also manufactured or packed under licence in 14 further countries.

### Focused on Phytotherapy

Phytotherapy means the treatment of pathological symptoms with plant-based drugs. Phytotherapy is today the most widely used form of drug therapy within the field of plant medicine, which is becoming ever more important.

The experience gained from centuries of herbal medicine is today taken just as seriously as conventional medicine. Many people in fact have more confidence in the effectiveness of natural medicines. This is

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