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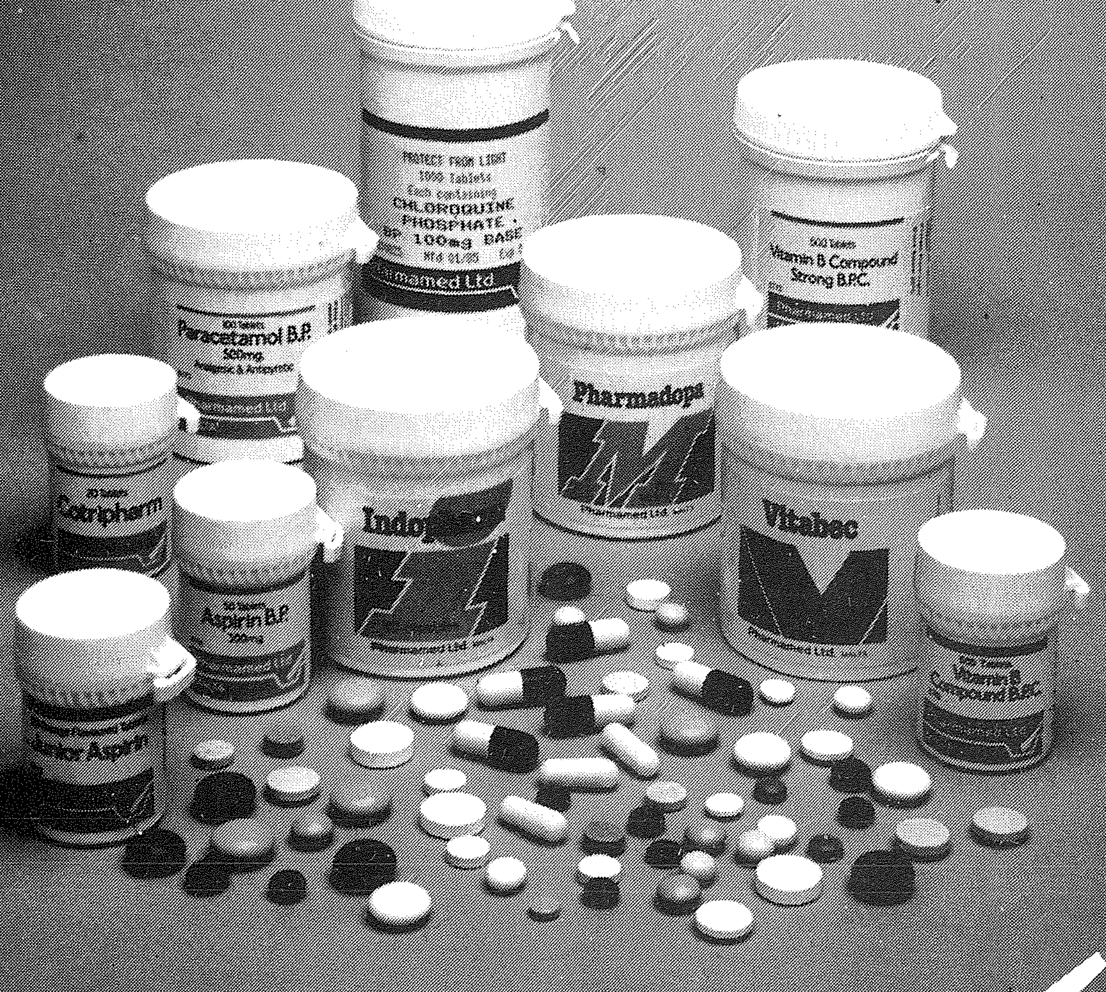

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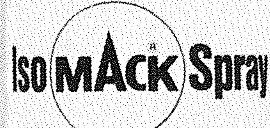

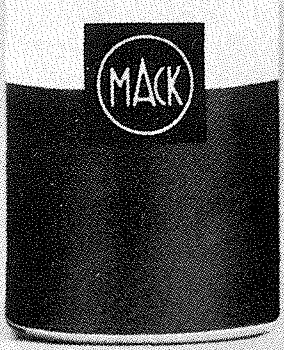

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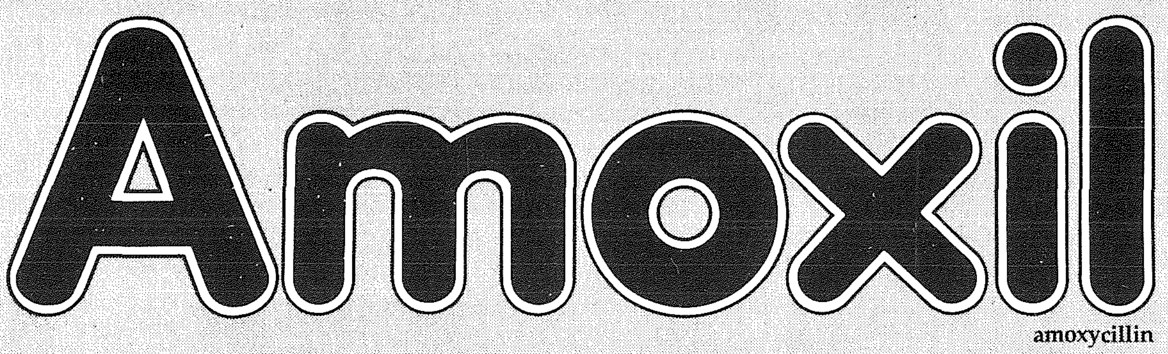

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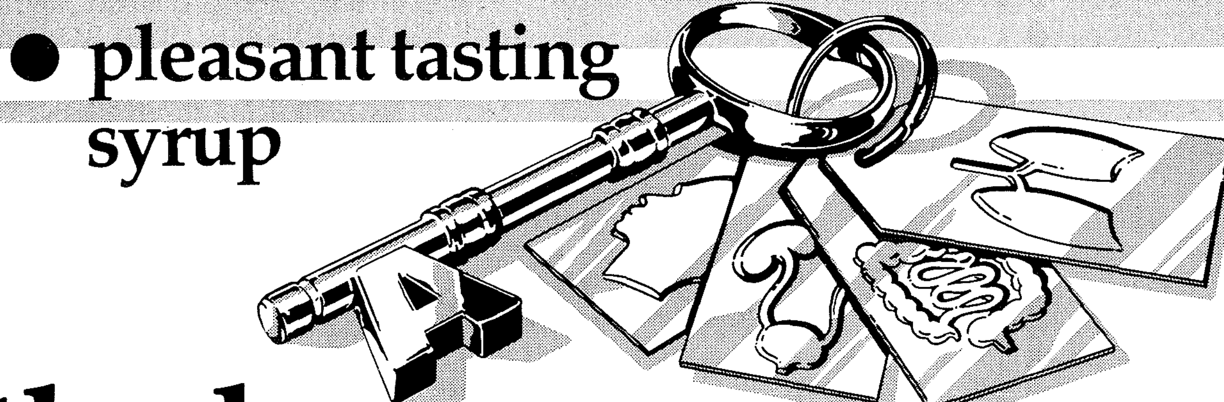

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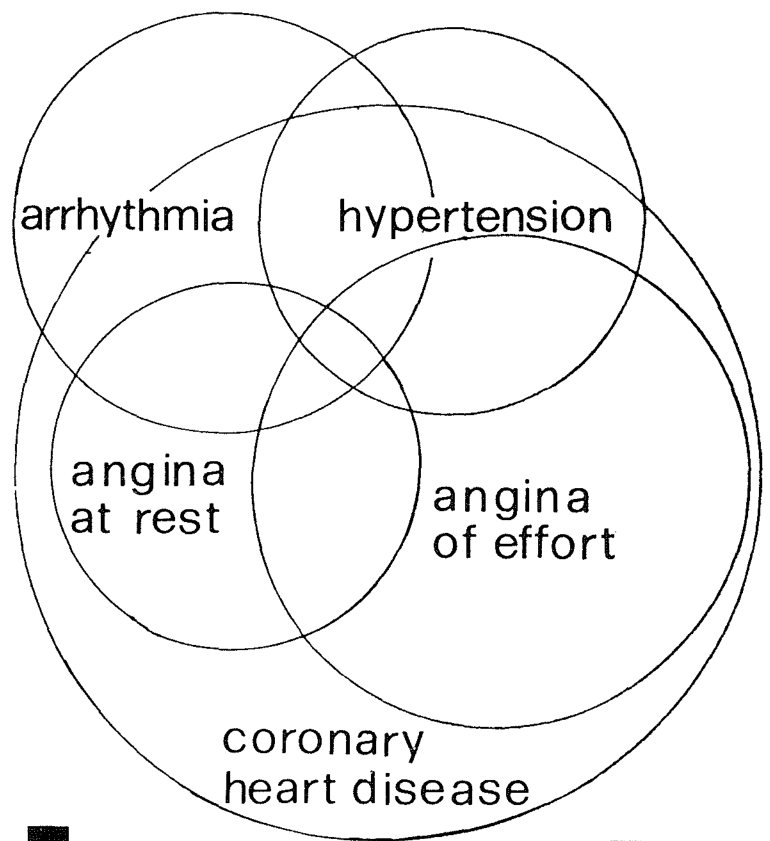
Cover

Front Cover was created on a Macintosh with Mac Print by Charles Cassar and printed with the Apple Laser Writer. Ink drawing of squill, a local medicinal plant by Charles Cassar. The article Squill by A. Scicluna Spiteri is on page 22.

The opinions expressed in THE PHARMACIST are not necessarily those endorsed by the Chamber.

Comprehensive therapy of coronary heart disease



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EDITORIAL

Pharmacists Against Drug Abuse

PHARMACISTS COMMITTED TO FIGHT DRUG ABUSE

Our goal in the fight against Drug Abuse is to help future generations stay Drug Free. Equipped with accurate information, Pharmacists are in a unique position to educate the public, especially parents, on DRUG ABUSE PREVENTION within our communities. This was stressed by all the speakers at the forum 'PHARMACISTS AGAINST DRUG ABUSE' which brought to an end, the course on Drug Addiction organised by the Chamber of Pharmacists in collaboration with Caritas. This course has been an initial effort and other educational activities should be organised for all pharmacists so that they can discuss and learn from the experiences of others, who come in contact with drug abusers. Pharmacists can go a step further and form an integral part in the organisation of fora and conferences in towns and villages.

USE MEDICAMENTS WITH CARE

Traditionally, patients have confidence in their pharmacist and ask for advice on the correct use of medicaments. Pharmacists should educate the whole family to USE MEDICAMENTS WITH CARE AND NOT TO MISUSE THEM. There is no such thing as 'Pure' hard drug addict, the problem is polypharmacy. We are a drug using society and a drug abusing one as well. The benzodiazepines when used correctly are excellent medicaments but they have been misused by many medical practitioners.

PREVENTION THROUGH EDUCATION

Now is the time to combat the Problem of Drug Abuse through the EDUCATION of our citizens, both young and old, as to the dangers of drug abuse. SIMPLE, CLEAR, FACTUAL INFORMATION in the form of booklets and leaflets should be made available to the general public through pharmacies. All pharmacists are encouraged to play an active part by prominently displaying such information. Today's pharmacists must be aware of the Drug Problem and of ways to combat it. Presently the university curriculum does not include any training on the nature and consequences and treatment of Drug Abuse, while seminars of various kinds are essential to provide pharmacists continuing education on this important subject.

HEALTH DEPARTMENT

The processing of the 'green forms' for psychotropic drugs by the Health Department, has to our knowledge, not been computerised. As a result of this there has been no feedback from the Department of Health as to potential misuse and abuse of these drugs and identification of problem areas. Furthermore the issue of an up to date register of doctors' signatures would help pharmacists identify doctors' signatures. These 'green forms' seem to deflect the aim of physically controlling the amount of medicaments as the patient is now receiving a large amount at one go.

Large quantities of drugs in the home medicine cabinet leads to abuse. One is shocked to know that children start on the road to drugs by helping themselves of their home medicine cabinet, or grandma's, or obtain them from friends with similar access.

IT IS UP TO US!

When a disease has no known cause, and no known pathology and no definite treatment, prevention is the only avenue of hope. Through the cooperation of all segments of our society, we have it in our power to beat back the epidemic. It is up to us!

NEWS

PHARMACISTS AGAINST DRUG ABUSE

In May, a course on drug addiction was organised by the Chamber of Pharmacists for its members and for pharmacy students. This represents the first activity in the action programme 'Pharmacists Against Drug Abuse'. The short course consisted of 4 lectures:

7th May: Drugs of Abuse — Dr. M. Sciberras M.D.

14th May: Addiction — Ms. J. Farrugia B.Pharm.; Mr. P. Attard.

21st May: Rehabilitation — Mr. J. Gatt; Mr. M. Sciberras M.D.

28th May: Forum — Pharmacists Against Drug Abuse — Chairperson: Ms. M. Gatt B.Pharm.; Speakers: Dr. A. Serracino Inglott B.Pharm., D.Pharm.; Dr. A. Galea M.D., M.R.C.P., D.P.M. (Eng.); Mgr. V. Grech.

The video film "High On The Job" was shown on May 7th. It illustrated the terrifying effects of people on jobs, including professional people who became addicted to cocaine. During the 3rd lecture two former drug addicts were present to relate their experiences. This course was very well attended, an indication of pharmacists' concern about this serious problem on the island.

EXTENSION STUDIES 1986

The extension studies lectures for 1986 was held. These were very ably given by Dr. A. Serracino Inglott. The topics chosen were:

1. Basic Pharmacokinetics
2. Drugs Acting on the G.I. tract
3. Treatment of Allergy and Asthma
4. Management of essential hypertension
5. Management of pain.

Each lecture was accompanied with a set of questions which were circulated at the beginning of the series. The questions of the last 3 lectures were discussed at an extra session held on Wednesday 23rd April. These lectures were fairly well attended, however, there was a lack of attendance by older pharmacists for whom this year's lectures were primarily intended.

At the last session, a number of pharmacists talked about their experiences in taking patients blood pressure measurements at the pharmacy.

The organisers would like to thank the following firms for sponsoring the lectures and providing video films on the subjects discussed:

(Continued on foot of next column)

Associated Drug Co. Ltd.
Vivian Commercial Corporation
Spiteri Maempel Ltd.
Joseph Cassar Ltd.
Schering U.S.A.

Thanks also to Pharmacos Ltd who also made a video film on Oral Rehydration, available.

Lecture notes will be sent to all registered participants.

THE COMMONWEALTH PHARMACEUTICAL ASSOCIATION

Eric Zammit B.Pharm

The president of the C.P.A. is Dr. J.M. Banergie of India and the newly appointed secretary is Mr. Roy Dickson from U.K. The C.P.A. issues regularly a journal, "The Commonwealth Pharmacist", which features regular news of the pharmaceutical activities within the Commonwealth. From the last issue of the journal, the following items might be of interest to us all:—

'A gallup poll taken in the United States revealed that clergymen and pharmacists received the highest rating for honesty and ethical standards among various occupational groups.'

'A new leprosy vaccine will be tried out among 120,000 people in N. Malawi. The trial shall be held in conjunction with the World Health Organisation.'

The following statement represents top ranking consensus of a workshop session of a conference with the theme "Directions for Clinical Practice Pharmacists" organised by the American Society for hospital pharmacists:—

a. Pharmacy should seek diligently to establish an image in the public's eye that conveys the message that we are their advocates in all matters related to their need for, and use of drugs.
b. Pharmacist input should be a required component of the drug use process.
c. The pharmacy department in a hospital should be recognised as a clinical service, and should have direct representation on the executive committees of medical staff.

The following is an extract from an address by Dennis K. Helling from the University of Iowa U.S.A. at the conference of Australia and New Zealand Pharmaceutical Societies:—

(Continued on page 7)

THE PHARMACEUTICAL STUDENTS ASSOCIATION (P.SA.)

Alan Tonna

This is the first of what will hopefully become a regular column in the 'PHARMACIST' — a column which will keep the students and pharmacists in touch with each other.

Student Exchange

The Pharmaceutical Students Association is alive and well and its activities, especially internationally, have been very much on the increase. Following the visit by Enza Attard to Sandoz-Wander in Locarno, Switzerland last summer, the P.S.A. again collaborated with IASTE (International Association for the Exchange of Students for Technical Experience) and in their efforts managed to secure another student-exchange possibility with Sandoz-Wander. This year, third year student Damian Stellini will be spending two months gaining experience in Basle.

Meanwhile, Monica Abdilla will also be undertaking work experience abroad. She will be going to Sweden in July to see various aspects of Hospital Pharmacy, and is hoping to gain important information that will aid her in the presentation of her dissertation concerning parenteral nutrition. This visit was made possible by the collaboration of the P.S.A. with the International Pharmaceutical Students Federation with whom we have established strong contacts.

Graduation Celebrations

To mark the Graduation of the new pharmacists, the P.S.A. organised two memorable activities. A sports afternoon was held on Thursday 17th April at the University Sports ground. In the first event the graduates female netball team emerged outright winners over the students selection, the final score being 18-0. This was followed by a football match between the graduates and students. Again the graduates emerged as winners but were made to sweat it out until the very end as the students pressed hard for an equaliser. The final score was 1-0. After both matches, token medals were presented to all the participants. These were kindly donated by Pharmamed Ltd., who also donated two sets of gears and three handsome trophies. P.S.A. would like to thank Pharmamed and other sponsors for supporting the event and made graduation day an even happier day than was anticipated.

The second activity was a Fondou Night held at Mistra Village on Friday 2nd May. All present had a wonderful time chatting, cooking and eating and some proceeded to the Kaverna Disco to dance away to the early hours of the morning. Guest of honour was Professor Victor Ferrito who vacated his post as Acting Head of Department following his appointment as senior consultant with Marsovin Ltd.

(Continued from page 6)

"What does a consumer expect from the pharmacist? I think he would say — 'you the pharmacist, who have the knowledge to advise me and protect me from erring in drug use, please serve me. I want to reap the benefits of the challenging education you were previleged to receive in the pharmacy school. The ultimate goal of your career in pharmacy should be my well being. Always try to council me — the patient. If I am irritable please treat me with compassion; because I may be ill or worried about someone for whom I care. I want specific instruction — verbal and written — when a drug is dispensed to me. Please advise me of the specific precautions and warnings, because I do not want to be harassed by the medicines I take. I appreciate being told about your patient services and feel assured when you answer any questions on my health problems."

The 4th Conference of the C.P.A. will be held in Nairobi Kenya from 9th — 13th March 1987. The theme of the conference will be 'Availability of essential drugs in the Third World.' The objective is to identify the needs of developing countries with regard to essential drugs in relation to both imports and local manufacture.

FUTURE EVENTS

- 2nd July — Continuation of **Annual General Meeting** **Be sure to attend.**
- **SUMMER ACTIVITY** Look out for details.

Ciclopiroxolamine

A NEW ANTIFUNGAL AGENT

Ciclopiroxolamine is a chemically novel local antifungal agent with broad, complete, and unusually uniform inhibitory activity against fungi pathogenic to the skin and its appendages, namely: dermatophytes, moulds, yeasts and other fungi. Moreover, Ciclopiroxolamine exhibits an effective inhibitory action against a variety of other microorganisms including: Gram-positive bacteria, Gram-negative bacteria, mycoplasma, trichomonas and chlamidia. Ciclopiroxolamine is suitable for both dermal and vaginal use.

Ciclopiroxolamine is a pyridone derivative, in the form of an olamine salt.

Indications

All ringworm infections of the skin and its appendages (nails) caused by dermatophytes.

Tinea versicolor caused by m. furfur.

Candiditiasis of the skin especially vulvovaginal infections caused by candida.

Mixed infections of the skin caused by fungi and bacteria.

Mixed infections of the vagina caused by fungi and mycoplasma or chlamidia.

Dosage

Ciclopiroxolamine is availabile in the form of:

1% cream for dermal and vaginal applications.

1% solution for dermal application.

1% powder for dermal application.

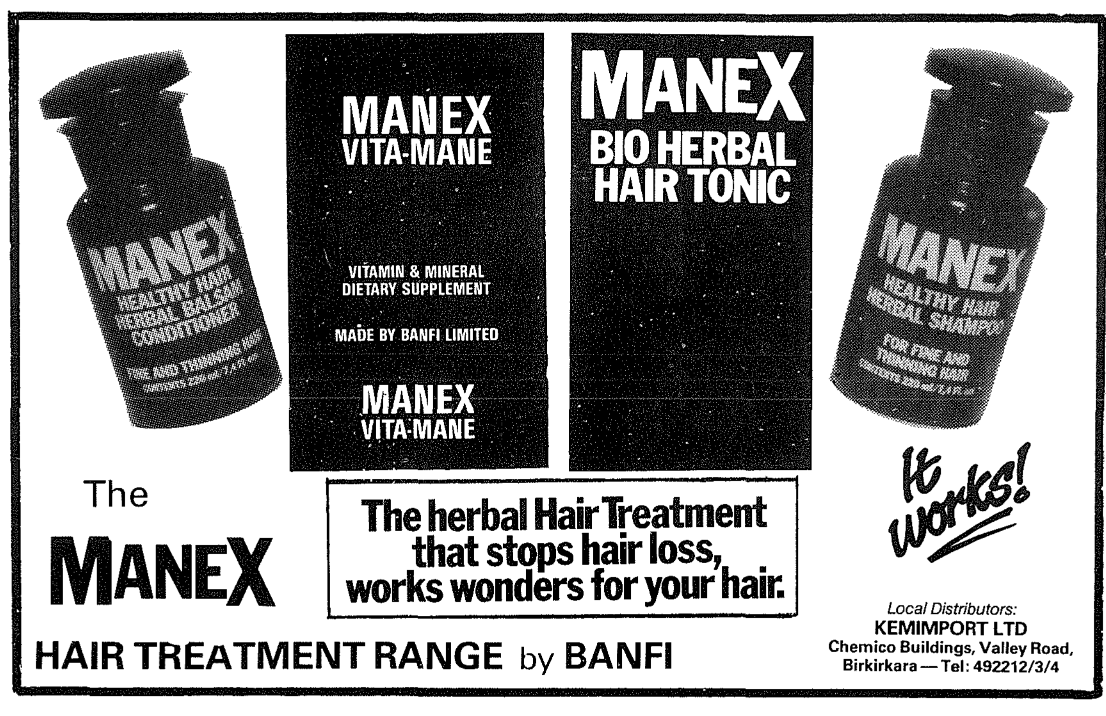
Ciclopiroxolamine should be applied twice daily for dermal applications and once daily in the case of vaginal application.

The average duration of treatment is 2-3 weeks in order to ensure total eredication of the fungi.

Ciclopiroxolamine, like any other drug, should not be administered during pregnancy except on the advice of a physician. The same applies to its administration to infants and small children. Ciclopiroxolamine is not suitable for the treatment of the eyes. The cream must be kept in a cool place.

Availability

Ciclopiroxolamine is marketed under the trade name Batrafen. It is a product of original research by Hoechst.



Amino Acids

THEIR USE AS A HAIR TONIC TO STIMULATE HAIR GROWTH

Fifty to one hundred hairs a day on your brush, comb or pillow is normal. More than this is excess hair loss. It happens to men who suffer "male pattern baldness", but it can also happen to women after childbirth or in menopause, or to anyone due to shock, medical treatment, dieting, illness, mental or emotional stress. Certain chemicals for hair growth, may not reach the follicle and eventually shrivel up and atrophies.

To stop hair loss and to stimulate hair-growth

A thousand-year-old recipe for hair ointment includes ground dried cauls from the Orient, yolks of boiled eggs, and wild honey to be followed by an olive oil rinse, a wash with soap and water and an all-day sit in the sun!

The ingredients in this ancient hair treatment, rich in proteins do actually help the hair, and this is true of many traditional hair remedies lost in misty folk wisdom and crumbling scripts.

A number of nutritionally trained physicians have been experimenting with specific nutrients both taken internally as suppliments and applied topically to the scalp.

One such herbal solution is made up from ten specially grown herbs: mustard seen, juniper, marjoram, horseradish, lavender, nettle, chamomile, rosemary, cimfrey, and mullein flower. The scientically accurate combination of herbal extracts, produce better results than the ingredients would if used individually. These herbal extracts contain 24 aminoacids, 19 of which are known to make up the structure of the hair. This brown translucent liquid is manufactured by Banfi as **Manex protein replenishing complex for hair.** Obviously Manex saves you the trouble of grinding up seeds and digging up roots to produce this natural hair restorer.

How does it work?

The nutrients involved in the treatment have primarily these actions. Extracts from mustard seed dissolves sebum eliminating any blockage of the hair follicle, allowing the concentrated aminoacids to penetrate to the base of the follicle, providing nourishment where hair growth begins.

Others are antioxidants which protect follicle cells from free radical damage. These include sulpher based aminoacids, L-cysteine an DL-methionine.

As suppliments they are available in combination with vitamins and minerals.

Nicotinic acid increases cutaneous blood flow due to its vasodilating effect.

Still others such as magnesium and Vit. B6 are co-factors necessary in the metabolic pathway which work towards protecting cells from age related damage.

Using microscopy and light, one test carried out at Rodcliffe Hospital, Oxford, showed that the sulphur carring aminoacids, that is, the parts of proteins extracted from the herbs, are absorbed in the hair structure giving it strength, elasticity and manageability.

In another trial, hair was stretched to test its elasticity. Ideally hair breaks at a 30% stretch. If it breaks before or after this it may be dry, brittle and unmanageable. There was improvement in elasticity, in hair treated with these aminoacids, and this improvement remained months after usage.

Application

The tonic is messaged in the scalp and hair in sections and then rinsed through. It is used every day or so until new growth is seen (as often as 3 times a day for severe hair loss, or as little as once a week for maintenance when healthy growth is achieved). As well as providing the amino acids for healthier hair, the complex also benefits the scalp, treating dandruff and stabilising hair loss. Where the follicles are still intact healthy new hair may begin to grow in the bald patches. Results have been seen after a few weeks, but because of the normal rate of hair growth, the recommended course is from 3 to 6 months.

Egyptian remedy

...Of course, you could always try this Egyptian remedy used by the mother of King Chata in 4000 BC: rub head vigorously with a preparation of dogs' paws, dates, and asses' hooves, all ground up and cooked in oil.

But really, ManeX is easier, more pleasant, and truly effective!

effective calming of anxiety symptoms, such as tension, apprehension, insomnia

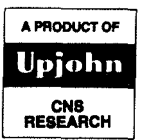
- superior in effectiveness to diazepam[1]
- at least as effective as lorazepam[3]

excellent patient tolerance

- no long-acting metabolite
- elimination half-life of 12-15 hours
- minimal accumulation

suitability for a variety of anxious patients

- patients with transient, situational anxiety
- elderly patients
- patients with functional or organic diseases, such as gastrointestinal, cardiovascular or dermatologic disorders



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Alprazolam

AN ANXIOLYTIC, AN ANTIDEPRESSANT OR BOTH?

Dr. Frank Pace B.Sc., (Hons) M.Sc., M.I.Biol., D.Biol. (Pisa), Dip.Ed. (Lond.), A.Inst.M., Dip.M. (U.K.), M.Inst.A.M. (Dip.)

Alprazolam or 8-chloro-1-methyl-6-phenyl-4H-s-triazolo (4-3a) (1-4) benzodiazepine has recently been launched locally. It has been available in the U.S.A. for the last five years. Alprazolam, because of its very special pharmacological properties is a useful addition to the armamentarium of the benzodiazepines already available to psychiatrists and general practitioners.

The Anxiety Syndrome

Patients frequently present themselves to the General Practitioner and Psychiatrist with a cluster of symptoms which may include amongst others:

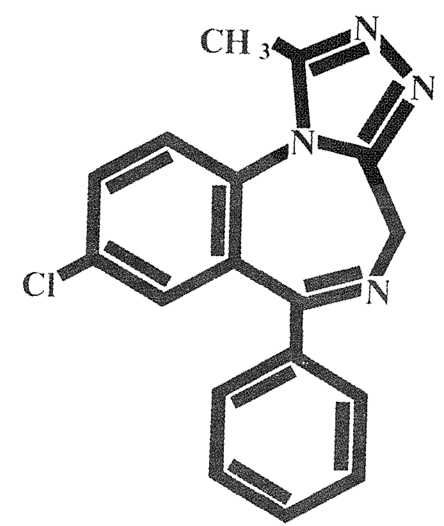
Sleep disturbances, fears of fainting, places, crowds and impeding disasters, pessimism, tense aching muscles, trembling or shaking, emotional distress, frequent crying without any particular reason, restlessness and fidgeting, heart beating fast or pounding chest pains, feelings of a lump in the throat or choking, cold clammy hands, dry mouth, stomach 'gas', nausea, or upset stomach, tingling sensation in hands and feet...... the list seems endless. Once clinical tests show that there is no serious underlying organic disease, the diagnosis is usually quite simple...... ANXIETY.

Notwithstanding the rapidity of this diagnosis the relationship between such a diagnosis and the therapeutic choice is made difficult and complicated by the multiple manifestations of the anxiety syndrome. Apart from clear-cut anxiety, treatment must be able to cover the patient from the somatic expressions of anxiety and in most cases, symptoms of depression are very frequently encountered.

There have been in the past, unjustified claims that once the patient is prescribed an anxiolytic (usually a benzodiazepine) then the depression symptoms cluster disappear. Modern psychiatric literature and clinical experience of general practitioners with patients on traditional long-term therapy with benzodiazepines completely disprove this school of thought. In fact use of anxiolytics usually unmasks the underlying depressive symptoms and the doctor in such cases would have to combine two drugs to cover both the anxiety and the depression which is associated with the anxiety. The usual combination therapy takes the form of a benzodiazepine, a tricyclic or an anti-MAO antidepressant. Before Alprazolam, there has been no benzodiazepine which could be prescribed with confidence to cover both the anxiety and anxiety associated with depression...... and this is precisely what Aprazolam offers to the doctor who frequently has to treat such patients!

Properties of Alprazolam

Formula:—



alprazolam

Alprazolam is a triazolo-benzodiazepine with very direct metabolism, and without accumulation of metabolites common to other benzodiazepines [6] (see table 1). Its half-life is of intermediate length 12 to 15 hours, which according to modern psychiatric literature is optimal for an anxiolytic. Longer acting anxiolytics, may offer the advantage of a once daily convenient dosage regimes but usually have accumulation of metabolites which is frequently not desired! [10 & 9]

Clinically superior in efficacy and with a reduced incidence of side effects, when compared with the standard benzodiazepine, diazepam

as proven in 24 clinics

Clinical Trials

Multi-centre double-blind clinical trials have shown the superiority of alprazolam as an anxiolytic to other traditional benzodiazepines. Alprazolam has been studied extensively on thousands of patients and has been shown to be superior to diazepam (the yardstick) (p 0.025) not only from a global medical assessment but also using [12] the Hamilton Scale of Anxiety [3] Studies comparing Alprazolam with the popular lorazepam has shown [4] that patients continue to improve after the second week of therapy, whilst the dramatic improvement also associated with lorazepam in this induction treatment tends to level off. The somatic manifestations of anxiety quantified by a scale of self-evaluation of the symptoms have been controlled by alprazolam to a much greater extent than for lorazepam even when studies were extended to 16 weeks of therapy [4]. Similar studies have also shown that Alprazolam is also superior to bromazepam when the anxiety syndrome cluster and the general patient's response were compared for a duration of 4 weeks of therapy [12].

Laboratory studies and clinical trials have shown an extreme tolerance of the drug when taken in therapeutic doses. In fact no clinically significant effects on the cardio-vascular and respiratory [5] systems or depression of renal and liver functions have been observed. Any side effects, which have been observed were always dose-related and were always simple extensions of its pharmacological activities. Somnolence and slight hypotension (as expected) usually disappeared after the second or third day of therapy.

Major Breakthrough

The major breakthrough of Alprazolam has been however the discovery that it is also clinically effective as an antidepressant beyond that explained by its anxiolytic action alone [8]. Comparing it with Imipramine (A Tri-cyclic antidepressant) and placebo, Feighner et al, have demonstrated that it is at least as effective as Imipramine in releiving depressive symptoms, significantly more effective in controlling the somatic symptoms of depression and shows an earlier onset of activity in some measurements!

According to provious reports the classic benzodiazepines are not effective in treating patients with major [13] depression, although they relieve the symptoms of anxiety often related to depression. The implications of such a discovery makes Alprazolam a unique benzodiazepine in its class!

Tricyclic antidepressants are indespensable in the treatment of severe depression but patients on TCAs often experience anti-cholinergic side effects, orthostatic hypotension, dry mouth, constipation and drowsiness. Moreover TCAs' if taken in high doses (especially by patients who have suicidal tendencies) have severe cardiotoxic effects. There is moreover a two-week lag for onset on activity [2].

Advantages of Alprazolam

Alprazolam offers the possibility of prescribing safe and unique anxiolytic which has comparable if not superior properties to the other traditional benzodiazepines but with a strong

direct antidepressant action as well. In most cases therefore, a cocktail of two or more drugs may no longer be indicated if the patient is suffering from anxiety and/or anxiety associated with depression. This not only effectively lowers the cost of therapy, but also and more important still, ensures maximum safety without the suspicion that the patient would on anxiolytic therapy develop depressive symptoms!

Dosage

Alprazolam is available in two-doses 0.25mg and 0.50mg tablets. Clinical experiences in European countries show that most adult patients respond to the 0.50mg tablet with an initial t.i.d. dosage. This dose can be increased even up to 4.0mg daily until the patient responds favourably. The 0.25 mg is perhaps more suitable for elderly patients who may require smaller initial doses. Both tablets are scored and this increases the flexibility of the dosage regime which ultimately would have to be discovered by the doctor for every individual patient.

Initial Dosage Guide

Anxiety	0.25mg	t.i.d.
Anxiety associated with Depression	0.25-0.5mg	t.i.d.
Elderly Patients	0.25mg	b.i.d. or t.i.d.

Dosage may be increased, if necessary, to a maximum of 4 mg/day.

Availability

Alprazolam is marketed under the trade name XANAX. It is a product of original research by THE UPJOHN COMPANY.

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(continued on page 29)

45th International Congress of Pharmaceutical Sciences of F.I.P.

AFTER MONTREAL

M.A. Felice Sant Fournier B.Pharm., M.Phil.

The magnitude of FIP congresses with the extraordinary range of activities which follow one another or are held simultaneously shows to what extent the profession of the pharmacist has developed, specialised and diversified.

Besides the purely scientific side, several problems, some of which arise year after year, were dealt with in Montreal, Canada last year. These included:

Pharmacy in the Third World; Continuing Education — Continuing education is calling for more and more attention; FIP is developing a post-graduate course in English, French, German and Spanish;

The setting-up of the 10th Section of FIP. This would group administrative pharmacists who are growing in number from year to year and who do not possible carry out activities covered by the other Sections;

The Updating of the International Code of Ethics — ethics are one of the foundations of the medical and pharmaceutical professions;

Cooperation between FIP and governmental organisations such as WHO.

Other matters less general, perhaps but quite as important were dealt with:—

Veterinary pharmacy;

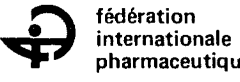
United Nations project: to assimilate psychotropic medicaments to narcotics;

The position of the pharmacists in the event of a nuclear conflict.

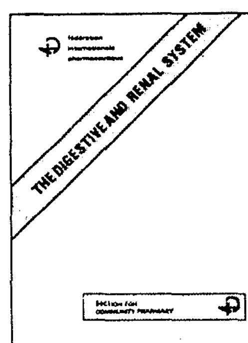
JOIN F.I.P.

At the bottom of this page there is an application form for membership of the F.I.P. Community Pharmacists Section. This section incorporates pharmacists working in general practice (retail) pharmacy. As part of the F.I.P. policy in promoting pharmacy education, this year's continuing education course entitled 'The Digestive and Renal System' is being sent free of charge to those who become members of this section. The other titles in this series of continuing education courses will be:—

— the cardiovascular system
— the respiratory tract
— the C.N.S.
— the endocrine system



Section for Community Pharmacists



A UNIQUE OPPORTUNITY...

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Fill in and return to: F.I.P., Alexanderstraat 11, 2514 JL The Hague (Holland).

☐ I am a member of F.I.P. Enclosed a cheque of Dfl. 20,-- + Dfl. 7,50 bank costs = Dfl. 27,50 (± 10$) as membership fee for the Section.

☐ I am not a member of the Section but would like to subscribe for the Course. Enclosed a cheque of Dfl. 50,-- + Dfl. 7,50 bank costs = Dfl. 57,50 (± 20$).

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LETTER FROM KENYA

Readers will recall my mentioning Harrison K. Abutiate B.Pharm., in my first article on FIP (The Pharmacist No. 8).

Harry regularly attends FIP meetings and is still waiting to meet 'a Maltese delegate' at one of these events! He was in Montreal last year and "(I) will be in Helsinki, Finland (next) this year...; hope to see you there!" Well, here is his concise report of what went on in Canada.

The 45th International Congress of Pharmaceutical Sciences of FIP was held in Montreal, Canada from 2nd-6th September 1985. The Congress was attended by over 2,000 pharmacists from 100 countries all over the world including Kenya.

Congresses of FIP are of two types, the Scientific congress and the General Assembly Congress. The General Assemblies Congresses combine scientific, professional and administrative meetings, while the scientific congresses include symposia, free communications and poster sessions. The two types of congresses alternate year after year and top ranking scientists from many nations come to discuss the latest developments in the field of pharmaceutical sciences. The 45th FIP congress held in Montreal, Canada is one of the scientific congresses.

The Congress took place at Palais des Congress and was officially opened by President of FIP, Mr Andre Bedat. The guest speaker, Mr Gaetan Boucher, an Olympic gold medalist in speed skating gave a brilliant address on "The Pursuit of Excellence".

About 340 scientific papers were presented during the congress, a number of posters and oral communications as well as exhibitions by more than 70 pharmaceutical companies, also formed part of the sessions. Of the scientific papers the following topics may be of interest:

1. Time-dependencies in pharmacokinetics and biopharmaceutics.

(a) Classification of various types of time dependencies — R.H. Levy of University of Washington.
(b) Time dependency in pharmacokinetics and disposition of drugs — G. Labrecque of Universite Laval Quebec.
(c) The impact of time dependent phenomena on bioequivalence studies — Anders Grahnen, National Board of Health and Welfare, Uppsala Sweden.
(d) Therapeutic implications of time dependencies — Alain Reinberg, Michael Smolensky and Francis Levi, School of Public Health, Houston, and Laboratoire de Physiologie Paris.
(e) Recent developments in insulin delivery — Jean-Louis Chiasson and Pavel Hamet Clinical Institute of Montreal — Quebec.

The update lecture on "Recent advances in treatment of Tropical Diseases", was delivered by Prof P.F. D'Arcy, Dept. of Pharmacy, The Queen's University of Belfast Northern Ireland. Diseases covered in his lecture were small pox, polio, cholera, yellow fever, TB, meningitis, amoebiasis, helminth infestations, malaria, schistosomiasis, filariasis, trypanosomiasis leishmaniasis, leprosy, with the last six being more difficult to eradicate. WHO has therefore selected them for special attack. He thinks reinfestation can only be eradicated by good water supplies, sanitation, education and training of the effected population.

There were also lectures on pharmacy practice in Canada, and finally drug therapy in the elderly by Prof. Peter Lemy of University of Maryland, USA. Various social activities and excursions formed an integral part of the congress. Participants and their accompanying persons had the chance of Montreal City tours, Harbour Cruise, excursion to Ottawa, Quebec City, and Olympic park. At the Theatre of St Denis in Montreal, participants were entertained by the National Ensemble of Canada to excellent demonstration of rich multi-ethnic dances.

The closing Dinner Dance was held at the Queen Elizabeth Hotel. The next congress which will be a general assembly congress, will be held in Helsinki, Finland from 31st August to 6th September 1986.

Regards
Harry

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Drug Therapy in the Elderly

M.A. Ciappara, B.Pharm.

This is based on the B.Pharm thesis of Ms. M. Scicluna B.Pharm. entitled 'Dosage forms in the Elderly'. (All drawings and tables are reproduced from her thesis.)

Introduction

In the last decades, life expectancy has substantially increased. The proportion of elderly in a population, vary according to the social, development and economic status of a country. In rich countries, it can now be as high as 16% and may become 25-30% by the end of the century, while in underdeveloped countries it may be as low as 4%. Comparing the percentage of population aged 60 and over in Malta to those of the major areas of the world as shown in Fig. 1, it is seen that 11.9% of the Maltese are over the age of 60.

In developed countries, the percentage increase in elderly subjects is a result of a falling birth rate and an increase in life expectancy in general related with the improvement in the country's hygiene and health services. The situation in Malta is similar to that of developed countries.

From data obtained through the demographic review, a study of the absolute number of elderly subjects in the Maltese population shows that it has increased considerably over the past 6 year, Fig. 2. In 1983, 13.04% of the population was over 60 years of age, and by the year 2000 this figure is expected to be 13.3%. Such figures emphasise that the needs of the geriatric patients will constitute an increasing important aspect of medical care of the future.

We are an aging society with both a greater relative proportion and a greater actual number of our population considered elderly. Old people form a disproportionately high part of the work of doctors in general practice. The health care needs are certain to increase and with that, as people live longer, they are more likely to suffer from one or two chronic health conditions such as heart disease, hypertension, diabetes and rheumatic diseases. Few of these diseases can be treated with just one drug which usually must be taken over a long period frequently for the rest of the patient's life. From research carried out in the United States it was found that the elderly take about 31% of all drugs dispensed.

Drug Therapy in the elderly

Drug therapy in the elderly is still uncertain, complicated and difficult. Numerous articles have been written about the overall impact of drugs and their use in the elderly. Guidelines for prescribing drugs are yet to be developed and perhaps that is the reason why adverse drug reactions occur more frequently in older than in younger patients. Prescribing for the elderly must be based on sound clinical principals to ensure that they are not denied adequate therapy where this is indicated, nor needlessly exposed to potentially toxic drugs. In addition, geriatric patients are likely to take their medication incorrectly, which may result in decreased efficacy or increased toxicity.

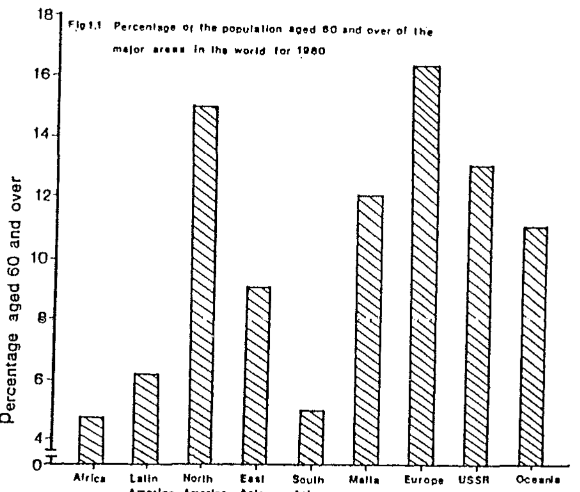


Fig. 1. Percentage of the population aged 60 and over of the major areas in the world for 1980.

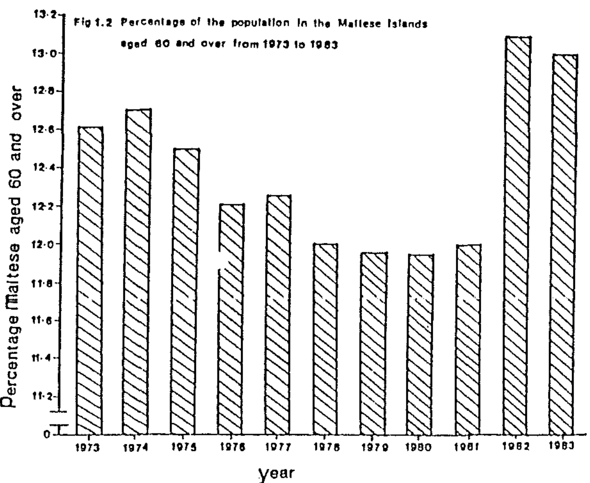


Fig. 2 Percentage of the population in the Maltese islands aged 60 and over from 1973 to 1983.

A new approach to minimize the undesirable effects of drugs is the intense application of pharmacokinetics and pharmacodynamic principles to geriatric drug therapy.

Table 1. Principals for Prescribing Drugs for the Elderly

1. Is drug therapy required?
2. Is the choice of drug correct?
3. Is the patient asked to take more drugs than he can tolerate or manage?
4. Which type of preparation is to be used?
5. Should the standard dosage schedule be modified?
6. Which side effects are likely to occur?
7. Is the drug correctly packed and labelled?
8. Can the medication be stopped?
9. Can self medication be achieved?

Pharmacokninetic and pharmacodynamic influence

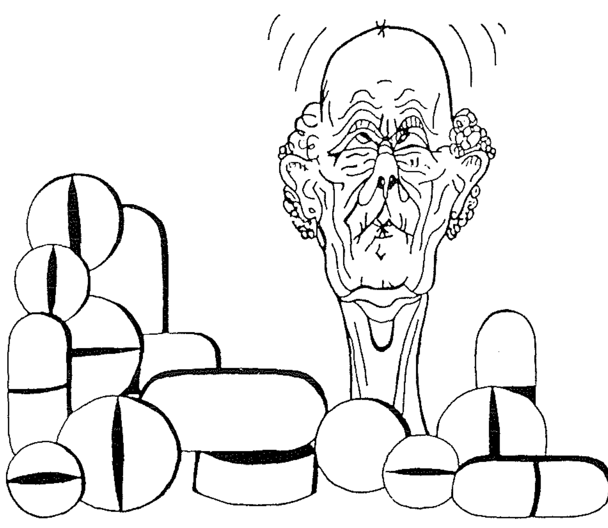
Though there is no evidence that drugs have a quantitatively different effect on the elderly patients than on younger patients, observations in practice suggest that with quite a number of drugs, pharmacokinetic characteristics deviate significantly in the elderly. Change in absorption, distribution, hepatic metabolism, excretion and other related physiological changes take place in the elderly. Because of these changes, the required dose differ in elderly patients, especially when the drug administered has a low therapuetic index as Digoxin. In these cases the dose is very critical and it is important to frequently monitor drug levels.

Absorption

A large number of drugs are administered by the oral route. Most drugs are absorbed by a passive diffusion process which is partially dependent on the pH of the surrounding fluid. With advancing age, there is a general rise in gastric pH, reduction in gastric fluid volume, and in the intestinal blood flow. These changes cause a decrease in rate of disintegration and dissolution of tablets and capsules. Weakly acidic drugs such as acetaminophen and acetylsalicylic acid are less readily absorbed. Administration of these weakly acidic drugs in liquid form is better.

By contrast absorption of weakly basic drugs, such as Diazepan and Erythromycin is from the small intestine. Due to a decrease in the gastric emptying rate, and a decrease in intestinal motility, there is a delay or decrease in absorption of weak bases.

Active transport is impaired in old age due to altered cyclic AMP levels in senescent cells. Absorption of some sugars, vitamins and iron and potassium is diminished, as these are absorbed by active transport. This explains why elderly people develop iron deficiency anaemia, hypokalemia, or osteomalacia, and why combinations of potassium and diuretics are not usually very effective in counteracting hypokalaemia in patients on diuretics. Elderly patients on diuretics therapy usually require 94 mmol of potas-



sium supplement daily. Whatever the preparation used, serum levels of potassium should be monitored in all patients.

Drugs which increase bowel motility as laxatives, may prevent adequate absorption, particularly of slow-release preparations.

Distribution

Once the drugs enters the blood stream it is distributed in the fluids and tissues of the body to reach sites of action. In the elderly there is a decrease in lean body mass relative to fatty tissues even in the absence of overall weight changes. The extracellular fluid remains unchanged whereas the intracellular fluid is reduced. Drugs which are mainly distributed in lean body mass or body water as Acetaminophen will demonstrate a higher blood level if the dose remains unchanged.

Fat soluable drugs as Phenobarbitone, Diazepam and Lidocaine, which normally are stored in fat tissue will have a greater volume of distribution in the elderly due to an increase in body fat with age. This will produce lower plasma levels and decreased intensity of action. A prolonged half-life of the drug reflecting a prolonged duration of action also results. If highly fat-soluable drugs are given in the usual dose and for a prolonged period of time, they tend to accumulate in the elderly and produce toxic effects. In these cases a wider dosing interval is necessary.

Although the volume of distribution changes with age for some drugs, it remains unaffected for others, such as Lorazepam, Nitrazepam and Propranolol.

Protein Binding

Plasma albumin levels decrease with age due to reduced albumin synthesis, increased albumin catabolism or both. Many drugs as, Warfarin, Phenytoin and Carbenoxolone are reversible bound to plasma proteins. Reduced plasma proteins allows more drug to diffuse in the circulation and a stronger pharmacological effect is observed. In the case of Phenytoin, reduced protein binding exposes a greater amount of drug to its sites of elimination, leading to a faster clearance from the body and a less intense pharmacological effect.

Hepatic Metabolism

Most drugs are metabolised via hepato monooxygenase enzymes. Subcellular and molecular mechanisms underly age-related decline in hepatic drug metabolism. Hypotesis lately has accumulated that strongly supports this evidence. A decrease in cytochrome P450 is responsible for oxidative drug metabloism, reduces total drug clearance and/or increases steady state plasma levels with repeated dosing in older patients. The half life of drugs such as Warfarin, Acetoamionophen, and Diazepan is increased. Other drugs such as Allopurinol, where its metabolite, oxyourinol, contributes significantly to its therapeutic effect, reduction in effectiveness may occur.

Additionally, hepatic blood flow may show substantial decrease with age; liver size decreases and related decreases in blood-flow clearances may occur.

Other changes in hepatic function, whether organic or induced by alcohol or drug ingestion, may present other clinical variances in the older individual.

Reduction in first pass metabolism is advantageous as lower doses of the drug are required, reducing the likelihood for toxic effects. Propranolol, chormethiazol, labetotol and glyceryl trinitrate show a substantial increase in peroral bioavailability in the elderly due to a low first pass clearance.

Sublingual Administration Absorption

Elderly complain of a dry mouth due to a decrease in salivation. When a drug is to be administered sublingually it will not dissolve readily and absorption through the mucous membrane is decreased. In these cases it is advisable to

Table 2. The Value of Various Dosage Forms in the Elderly

1.	Mixtures	Colour, taste, stability, dysphagia, self administration.
2.	Powders	Taste, stability, self administration, local irritation.
3.	Tablets and Capsules	Colour, shape, size, self administration, obscure taste, dysphagia, packaging, confusion.
4.	Parentrial	Onset of action, stability, pain.
5.	Suppositories	Absorption, inconvenience, first pass effect
6.	Aerosols	Local rapid effect, difficulty in use, fewer side effects.
7.	Eye Preparations	Difficult self administration.
8.	Ointments/Creams	Very easy to administer, compliance.

drink a glass of water before administering the drug.

Renal Excretion

The major age-related change responsible for altered pharmacokinetics is their reduced excretory ability. Both glomerular filtration and renal tubular secretion decline with advancing years. Kidney function is reduced by 30-40% in the elderly. Fortunately, decreases in renal clearance of drugs excreted mainly unchanged by the kidney (many antibiotics) often correlate well with creatinine clearance. Thus, correct determination of kidney function can diminish the effect of reduced kidney function and reduce the hazard of cumulation of drugs due to altered kidney function. This decrease capacity to eliminate drugs may lead to accumulation of certain drugs like chlopropamide, aminoglycosides antibiotics and digoxin.

These age-related changes, make the elderly patient more prone to medication problems, particularly side effects from drug accumulation which is probably one of the main reasons for increased sensitivity to these drugs. It is clear that for certain drugs, dose reductions and in some cases dosage form change should be considered.

Since it is not yet possible to draw firm guidelines on all the effects of ageing, drug pharmacokinetics and pharmacodynamics, many more carefully designed studies are required involving normal healthy volunteers.

This is necessary for many drugs already undergoing wide use amongst the elderly and for the new drugs likely to be extensively prescribed.

Manufacturers should provide information for this kind and give recommendations for starting and maintenance dosage to elderly patients. Such recommendations will provide guidelines to individualise therapy.

Compliance of elderly patients to different dosage forms

The elderly are prone to ingest medications only when they think they need them, making compliance a problem. Some elderly patients are unable to deal with drugs presented in unusual ways, however appropriate these may be. Others may find it difficult to use certain dosage forms and would prefer other forms of drug presentation.

The problem of non compliance increases with the number of drugs a patient is taking concurrently. According to Steward and Cliff (1972) the percentage of medication errors among the elderly ranges between 25% and 59%. Errors include dose omission, inaccurate dosage improper timing and sequences, inaccurate knowledge about the intended therapy or omission of medication.

Poor compliance can have serious repercussions. It can be life-threatening in cases of insulin or digoxin omission. Unintentional overdosage may result in toxicity. To see whether such compliance problem exists with elderly Maltese patients, a 15-day survey was conducted to estimate the percentage non-compliance of such patients to different dosage forms. In the study 230 patients were interviewed at different Government Dispensaries using standard Questionnaires. Table 3 summaries the results.

This survey showed that polypharmacy is evident among uninstitutionalized elderly Maltese patients. The patients interviewed were prescribed an average of 3.8 different drugs during any one period, 57% were prescribed more than 4 different types of drugs.

Table 3. Compliance of Elderly Maltese Patients to Different Dosage Forms

Dosage Form	Number of Elderly Patients taking the dosage form	Number of Elderly Patients Non-Compliant to the dosage form	Percentage of Elderly Patients Non-Compliant to the dosage form
Tablets/Capsules	226	97	42.9%
Injections	32	3	9.4%
Aerosols	13	1	7.7%
Oral mixtures	11	3	27.3%
Suppositories	18	10	55.6%
Eye drops	7	3	42.9%
Ear drops	—	—	—
Ointments/Creams	—	—	—

Gibson and O'Hare (1968) suggested that the elderly can usually only manage to take three prescriptions at a time, and that this number of different drugs given to an elderly person should not be exceeded. 10.3% of the interviewed patients not compliant to tablets blamed the complex medication programme prescribed to them. Patient compliance may benefit from minimizing the complexity of the therapeutic regimen and restricting drugs to the absolute minimum essential number.

To alleviate compliance problems in the elderly who tend to forget

(1) a 'daily calendar' detailing each day's drug treatment in chronological order or

(2) a 'table identification card' bearing samples of the medication and details of the administered schedule. These can be used apart from standard instructions and suitable labelled and packaged medication for alleviating specific compliance problems in individual patients.

Major Reasons for Non-Compliance

1. Standards of labelling.
2. Packaging.
3. Social isolation.
4. Mental friality.
5. Complex therapeutic regimens.
6. Nature of medication.
7. Side effects.
8. Deliberate deviation.
9. Lack of Doctor/Pharmacist raport;
10. Inadequate patient education.

Little attention is paid to the patient's dislike of some dosage forms. The number, colour, size, shape, odour, taste and ease of administration of formulations should be considered before prescribing a medication schedule to an elderly patient. Suitable labelling and packaging of dosage forms should be adapted.

Intentional premature discontinuation of a course of treatment may occur for a variety of reasons. In a chronic asymptomatic illness such as mild hypertension, motivation may be lacking. Some elderly patients believe that once they begin to feel better, treatment can be taken as required or stopped altogether. Occasionally, therapy is stopped because the patient is concerned about habituation or the development of new symptoms which may be ascribed rightly or wrongly to the drug.

The incidence of uncomfortable side-effects such as gastric irritation with Indomethacin capsules, blurred vision caused by Pilocarpine eye drops, frequent urination with diuretics can lead to discontinuation of therapy. Patients should be informed about the possible side effects of a drug on commencing treatment.

Table 5. Maximizing Compliance

Direct	Careful prescription history
	Consider non drug therapy
	Use only essential drugs
	Make sure regimen is appropriate
	Review regimen every 6 months
	Reduce daily number of doses.
Observation	Look for mental status changes
	Look for anticholinergic effects
	Look for incontinence induced by high-potency diuretics
	Watch for drugs that can cause falls and fractures by impairing alertness, mobility, or normal cardiovascular tone and blood pressure.

Role of the Pharmacist

Pharmacists have an important role in educating the elderly to comply with the medication and not to engage in excessive self medication.

Elderly patients respond favourably to increased care, concern and interest. Traditionally they viewed the pharmacist as a vital link in the health care team. The pharmacist must insure that all medicaments dispensed are in adequate containers, strong enough to withstand frequent handling, but capped in a way that render medicine accessible to elderly patients. The instructions on the label should be clear, simple and specific.

Before dispensing the medication, the pharmacist must council the patient in simple language about each drug. Information should include: purpose of medication, method of administration, time of drug intake, selected side-effects, storage advice, warning etc. As oral instructions may be quickly forgotten, reinforcement with printed information is necessary. Apart from the labelling of dosage forms, the use of memory cards are important to increase compliance.

The pharmacist can also improve patient care by monitoring for dose related side effects and evidence of adverse effects. Prompt recognition of these adverse reactions may minimize patient discomfort. The pharmacist in addition can impact on medical care by providing accurate drug and pharmacokinetic information to physicians at the time decisions are made as to the selection of the most appropriate medication for a particular patient.

At the government dispensaries, no permanent pharmacist is present and the patient receive their medications sealed in a bag without a word of advice. It can be worth considering, the possibility of patients receiving their free drugs from a retail pharmacy of their choice, where they can depend on the pharmacist present for drug related advice. Successful management of the elderly demands good communication between pharmacist and the patient.

Conclusion

The field of geriatric pharmacy is newly evolved, and most pharmacists have little or no formal education on geriatric study. Departments of pharmacy need to increase their research in this area and to develop educational programmes in geriatric, clinical pharmacology and therapeutics for both under-graduate and post-graduate curriculum.

We are an aging society with both a greater actual number and a greater relative proportion of our population considered elderly.

More knowledge is required about the aged and aging; and more dissemination of the sizeable and growing body of knowledge about health and disease in old age.

Scientists working in drug product development should consider creating more adequate dosage forms for the elderly patients.

There is absolutely no reason why in today's medicated society, the elderly patient should be condemned to that Shakespearean state of mere olivion, "sans teeth, sans taste, sans everything."

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MEDICINAL PLANTS

Squill

A. Scicluna-Spiteri, B.Pharm., B.Sc., Agric. Chem., M.Sc. (Durch.), C.Biol., M.I.Biol., M.I.Pharm. M.

Squill consists of the sliced and dried scale-leaves from the bulb of Drimea maritima (L) Stearn (formerly known as Urginea Maritima) family Liliaceae, a plant indigenous to Malta and to the countries bordering on the Mediterranean, and frequently appearing in great numbers on rocky wastelands.

Early Use of Squill

The medicinal value of squill (**Drimia maritima** (L) Stearn) heas been recognised since early classic times; ancient Greek and Egyptian physicians were well acquainted with its therapeutic properties and used it to cure various ailments. Pythagoras who lived in the sixth century before Christ appears to have combined it with honey and thus pioneered the use of oxymel of squill which is still used today as a remedy for coughs (Grieve, 1959). Another indication of the early use of squill is found in a manuscript dating back to the sixth century before Christ, which shows a detailed drawing of the squill plant (Stoll, 1937); Dioscorides, who was responsible for this manuscript, goes on to describe the different varieties of the squill bulb and gives directions for producing vinegar of squill. Squill was also mentioned by Theophrastus in the third century before Christ, and another Greek physician, Epimenides, is recorded as having made frequent use of squill (Fluckiger and Hanbury, 1879). The Arabs who followed the Greeks in the utilisation of certain plants for medicinal purposes, called the squill bulg "Basal-el-unsal", which is very similar to the Maltese name of "Basal tal-(Għ)ansal". The Arabs appear to have often used squill combined with honey, and went on to introduce it into European medicine (Dymock, 1972).

Official Name

Linnaeus (1707-78) had originally named this plant as **Scilla maritima**; the generic name **Scilla** may be derived from the Greek word meaning to excite or to disturb and it is held that this name was chosen in recognition of its emetic properties (Grieve, 1959). **Maritima** is an obvious allusion to its usual habitat close to the sea. Steinheil, however, in 1834, after carefully tudying the plant in its Algerian environment, removed it from the genus **Scilla** and placed it within the genus **Urginea** which he had named after the local Algerian tribe **Ben Urgin.** Steinheil retained the word **Scilla** in lieu of **maritima** and squill became officially known as **Urginea scilla** Steinheil, until Baker replaced once again the word **Scilla** with **maritima.** For a considerable number of years, squill was officially known as **Urginea maritima** (L) Baker. This name survived until 1979 when Dr. Cutler at the Royal Botanic Gardens, Kew, reclassified it as **Drimia maritima** (L) Stearn. This new official name appeared in the Pharmaceutical Codex 1979, and in the Addendum 1981 to the British Pharmacopoeia 1980.

The name **Scilla,** as well as the term "**White Squill**" are used as secondary common names in Pharmaceutical reference books; these include the British Pharmacopoeia 1980, the Pharmaceutical Codex 1979, Martindale 1977. The term "**White Squill**" appears to have been adopted in common usage to distinguish the white bulb commonly used in medicine from the red variety of Drimia maritima which is mainly utilised as a rat poison.

Use of Squill

The wide use of squill in medicine is reflected in its inclusion in a large number of national Pharmacopoeias including those of Argentina, Britain, Chile, Czechoslovakia, Egypt, France, Federal Republic of Germany, Hungary, Portugal, Romania, Spain and Switzerland. In its long history of medicinal application, squill has been used as:

(i) an emetic
(ii) a diuretic
(iii) a cardiac tonic
(iv) an expectorant
(v) a rodenticide

Squill Glycosides

Proscillaridin seems to be the most widely used of the cardiac glycosides obtained from

squill; Martindale (1977) quotes the effective and reliable use of proscillaridin in congestive heart failure in 49 patients to whom it was given in doses of 500 to 750 ug every 8 hours. This treatment was considered safe despite the fact that 9 out of 17 patients on the lower dose, and 24 out of 32 on the higher dose developed anorexia, nausea, vomiting and diarrhoea. Proscillaridin has a rapid onset of action in cardiac failure and a short duration of action. In mild and moderate heart failure it could be given by mouth in which case about 20 to 40% of a dose are absorbed; in severe heart failure, two intravenous doses are required every day, (Martindale, 1977).

The antiviral activity of Scillarenin, one of the glycosides found in squill, was investigated in Japan by Sato and Muro (1974). It was found that scillarenin selectively inhibited the multiplication of picorna viruses, in particular rhinovirus. Since the rhinoviruses are responsible for the most frequent of human infection, the common cold, the administration of a squill expectorant in conditions precipitated by a common cold, could have the added benefit of containing the growth of the causative microbiological agent. This phenomenon appears to explain the effectiveness of squill preparations as a remedy for coughs resulting from a common cold.

Local Use of Squill

Squill has been known and used in Malta probably as early as the Arab occupation of Malta in the tenth century; the close similarity of the Maltese and Arab names, as well as the historical association of Arabs with the introduction of squill into European medicine, support the view that squill, which is indigenous to Malta was adopted for medicinal purposes during that time. According to information collected from the older inhabitants of rural districts who are familiar with some forms of herbal medicine as practiced in their yotuh, squill was formerly extensively used as a diuretic and an expectorant. The use of squill as a diuretic and an expectorant is also recorded by Borg (1927) and by Cassar (1965). The direct use of squill at present appears to be insignificant as its use has been superceded by other expectorants or by local honey.

Conclusion

Malta has always featured prominently as one of the main geographical sources for squill. This was probably due to the abundance of wild

stocks, good transport facilities between Malta and London, as well as the good reputation which the Maltese product had earned on the British markets. All the supplies are obtained from squill growing wild in various rocky wastelands in Malta.

In recent years considerable land which used to produce wild stands of squill has been taken over for afforestation, agricultural activity or urbanization. Moreover, the actual collection of squill has become exceedingly expensive considering the significant increase in the national minimum wage. As a result, the collection from the wild stands poses a serious problem; not only in collection, becoming an uneconomic proposition but the actual source is in fact decreasing in volume. The Cassar family who have enjoyed a complete unasked for monopoly over the collection of squill over the last 25 years is bitterly complianing that sooner or later export of squill from Malta will have to cease. The fact that the Indian squill is now accepted officially betrays the fact that the Maltese source is not meeting the demands for squill on the London markets.

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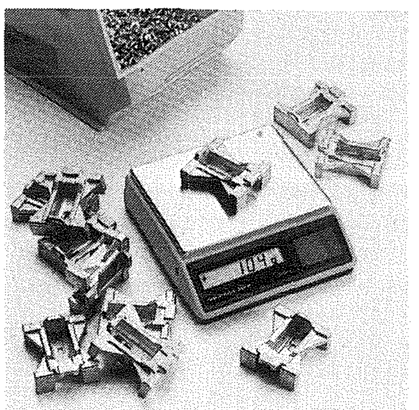

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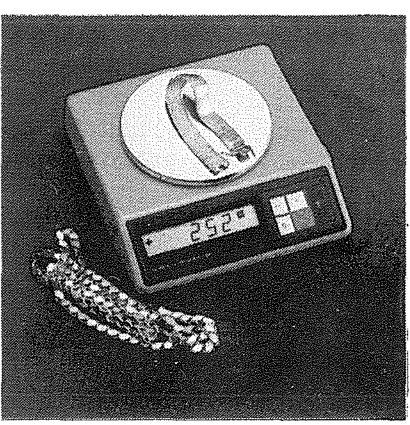

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Addressing the positive plan to the Multitude

M.A. Felice Sant Fournier, B.Pharm., M.Phil.

Two members of the Executive of the Chamber of Pharmacists, Maryanne Ciappara, B.Pharm. and Maryann Felice Sant Fournier, B.Pharm., M.Phil., participated in the International Conference 'Together Against Drugs', held on the 5th and 6th April 1986, at the Hilton Hotel, Malta, organized by the Lions Club (Malta) and held under the auspices of the Secretary General of the Council of Europe. The following is a review of the conference:

AWARENESS AND SELF HELP

This conference was organised to contribute to the increase in **awareness** in drug abuse and also help parents, social workers, youth leaders and young people themselves to understand the problem and have the courage to face it.

The conference was attended by over 200 persons including, those who are in daily contact with young people, some of whom are on drugs; those who can contribute interesting views on the problems of young people even though they have not been in contact with drug users, and, those who attended to learn about the problem and hopefully be better prepared to face it in the future.

The panel of experts who spoke during the conference included foreign and Maltese speakers. After an opening speech by conference chairman, Mr. A.J. Tabone and an address by Lions Club (Malta), Mr. Jos. F. Depares, messages of congratulations and support were read out from various world personalities, including His Holiness the Pope and Mrs. Nancy Reagan. The assembly was then addressed by His Grace the Archbishop of Malta, Mgr. Joseph Mercieca, B.A., Ph.B., S.Th.D., J.U.D., who expressed the Church's view on the problem of drug abuse, this being not only a social one but also one of moral implications.

GOVERNMENT'S MULTISECTIONAL APPROACH

At the start of his speech the Hon. Minister of Health, Dr. Vincent Moran, M.D., M.P., remarked that unfortunately, today's populations are drug-consuming, alcohol and tobacco having become socially acceptable. The abuse of legal drugs such as sedatives require care in prescribing and the enactment of laws has been deemed necessary to curtail such abuses. The speaker then proceeded to give an historic resumé of salient points in the modernisation of the legislation affecting psychotropic drugs culminating in the Drugs Control Regulations 1985. The role of the pharmacist in the control of the so-called 'soft drugs', i.e., psychotropic drugs and drugs of dependence, was here referred to.

There is also a pressing need to coordinate and promote rehabilitation facilities for alcoholics and illegal drug users. The importance of information and education was also emphasised, in line with the strategies and targets developed by WHO Regional Office for Europe and Programme of Health for ALL by the Year 2000.

An integrated system such as one involving the Department of Social Services, Caritas and Alcoholics Anonymous is deemed to be most effective. Indeed, the setting up of various therapeutic centres run by both the State and Church was considered to be most beneficial in the fight against drug abuse. The Caritas Induction Centre screens drug abusers for potential detoxification and the Methadone Clinic at the hospital where a recent innovation is the administration of a **single** daily dose of methadone **under supervision** certifies the patients as drug-free and ready to proceed to undergo group therapy such as at drug-free residential rehabilitation facilities. Another recent innovation is the separation of Hospital Psychiatric clinic from that for Drug Abusers.

It is also important to update information and set up an information centre which will be a Health Education Resource and monitor on a continual basis the drug problem. Computerisation is envisaged in the near future and this will be a great asset in the identification of problem areas.

DRUGS IN OUR SOCIETY

Mr. Jim Cumberton, President of the European Federation of Therapeutic Communities, laid the emphasis on Prevention and parents. He said that Europe awaits the 'cocaine explosion'; already nearby as has been in the U.S. The pattern of drug abuse is continuously changing; the cost is tremendous in terms of law enforcement, personal and familiar misery, the family being totally unprepared to handle the 'drug epidemic'. Society is passive, accepting illicit drug abuse to some degree due to uncertainty of values and ambiguity of parental roles. But, 'drugs are everyone's business' and it is useless to put the blame on our police corps, schools, etc. In this way one only avoids direct involvement. The old adage 'Prevention is better than cure' is most indicative in this context, for, in the words of Pope John Paul II, "You cannot cure drug addiction by means of drugs". The democratic way is through **Education**, an area of greatest need; equipped with **correct** information imparted to them by concerned individuals, professionals themselves suitably educated in the matter, parents can (and must) take action and be instrumental in bringing about positive results at neighbourhood level, becoming ultimately a 'world-wide power'! Indeed, in education programmes it would be 'Fatal' to ignore parents... therapeutic activities by professionals alone will fail — parents must be involved or drugs will not be beaten. "...in this way one avoids direct involvement".

REHABILITATION — LOGOTHERAPEUTICS AND SELF-HELP PROGRAMMES

The logotherapeutic treatment was discussed, albeit superficially by Dott. Giacinto Froggio (Italy).

Logotherapy relies on the drug abuser coming back to understand the real values of life. It is based on the 'psychyological dimension' in that man being free has also a will of his own with all the risks that are involved. The addict has an existential frustration due to a lack of meaning in life, he is apathetic, has no sense of values, of creativity... logotherapeutics is exactly the opposite, it tries to instil positivity, creative values, satisfaction derived from time well spent — in productive work. It helps the individual to take a stand in certain life-situations, such as saying "NO" to drugs and becoming 'unself-centred'. These can help to **leave** the drug situation and change the whole attitude towards life.

THE WORK OF CARITAS IN MALTA — THE INDUCTION CENTRE

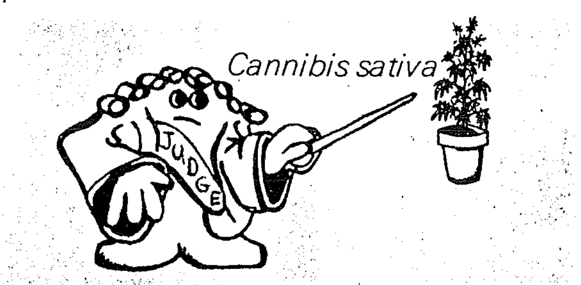
Mgr. Victor Grech spoke about Caritas and its rehabilitation centre for drug abusers, known as the Induction Centre which is run on a self-help programme. Treatment is given free of charge by trained staff of 5 full timers and 3 ex-drug addicts who were treated abroad. The programme is divided into 2 parts. Induction involves primarily, motivation to change the lifestyle; this is achieved especially through involvements of the addicts' family nucleus. No fixed methods are used, but care, confidence and trust are the 'magic words'. The addict must also undergo a detoxification programme at the hospital. Once certified drug-free, the person is ready to move to the second phase: the Day Programme. This is based mainly on Static or open sessions, Data and confrontation groups. Other activities include Occupational Therapy and family meetings where parents and relatives support each other and are made aware of the 'Tough Love Concept'.

The centre was opened in March 1985 and since then more than 75 young people have been treated. The severity of abuse is evidenced by the result of an opinion poll held in March 1986 which shows that 30 per cent of respondents, mostly youths between 17-25 years of age, admitted that they were offered illicit drugs on more than one occasion in discos, schools and on the streets. Caritas has also formulated a Programme of Prevention, to show the horrible effects on mental and physical health which drug abuse causes and that drug abuse can and should be avoided through better preparation for life given to youths and through the encouragement of activities which provide an alternative to drugs. This has culminated in the planning of a "Social and Life Skills Programme" which at the moment is being run in a number of Church Secondary Schools. Teachers will also be able to attend a course to be trained in the running of such a programme. In the schools and in the community, Action Groups are being formed to work in surroundings which are familiar; a number of courses run by specially-trained Maltese persons and foreign experts have been held for these groups.

It is planned that in the near future youths will organise themselves against drug-trafficking through activities known as 'Youth To Youth'.

THE LEGAL ASPECT OF DRUG ABUSE

The Hon. Dr. Guido Demarco, B.A., LL.D., M.P., stressed the need for the right Infrastructure in our society whereby drug abusers are made to realise that they are offending not only society but even themselves. This could be achieved through the identification of an institution designated by the Minister of Health whereby, instead of applying punishment, the abuser is remitted to a Centre for Rehabilitation. He emphasized that the shortcoming in the judicial system existing presently, in that the accused addict may be brought to face the Magistrate's court or trial by jury must be rectified, as this has a grave bearing on the sentence imposed.



DRUGS AND YOUNG PEOPLE TODAY — GIVING OUR YOUTH A BETTER CHANCE

Particular stress was made during the conference on the effect of drugs on young people. Fr. Charles Cini S.D.B., S.Th.L., World Delegate for Salesian Past Pupils, emphasised the necessity of timely intervention by parents because of his very nature the drug addict would take a long time to seek help and it is therefore important to "go out and look for him". Hence the operative plan must be addressed to the multitude and not to a selected number of addicts. He also dealt on the effectiveness of the 'Youth to Youth' programme.

Mr. Bill Rice, Executive Director, Tacade, then dealt on what alternative choices can be offered to our young people. The tripartite model of drug addiction was looked into in detail. This may be summarized as follows: 1. Core of information — selective, concise; 2. 'Feeling' — ability and skills to look into oneself and see how one is; 3. 'Doing' — e.g., resisting peer pressure and skills. The role of parents was highlighted throughout the exercise.

THE LAW ENFORCER'S POINT OF VIEW

Supt. Joseph Psaila said that the Police Corps in Malta are constantly waging war against drugs, although, in dealing with drug trafficking, difficulty is encountered as a result of the lack of cooperation from the general public. The local police force has gradually been provided with the necessary equipment and also with a nucleus of staff trained overseas with other police forces and drug enforcement agencies to aid their fight against drug growers, smugglers, dealers, users. He said that canabis (marijuana, grass) is the most popular illicit drug on the island due mainly to its relatively cheap price and widespread availability, probably as a result of Malta's climate; we now have cannabis plantations with a harvest for the local market. Cocaine and Heroin aer however on the increase but of course these are more expensive. Psychotropic drug abuse is also on the increase. Police activities range from strict control of the maritime traffic to entertainment spots; the vice squad has studied the local drug situation in 1985 and presented its recommendations to government

resulting in the recent amendments in legislation for traffickers, who are not drug users, but deadly merchants. Malta also cooperates with Interpol in the fight against drugs on an international scale.

A MEDICAL VIEWPOINT

Dr. George Debono, M.D., K.R.C. Psych., consultant psychiatrist with experience in the treatment of drug abusers in Malta and abroad, considered the problem from the medical aspect. He said that drug addiction is a psychic-physical state, resulting from taking a drug and only exists if there is **compulsion.** Both the patient receiving medication for a mental illness and the young person obtaining such a medication clandestinely can become addicts, depending on the pharmacological properties of the drug in question, the personality of the user and the environment. Referring to basic principles of psychocity, learning can be by the help of the senses or by conditioned reflexes e.g., response to pain; but drugs initially give a response which is pleasant and immediate and thus warrants repetition leading to abuse. The adolescent (14-17 yrs.) is becoming an adult and undergoes a mood swing with transient depression. He needs guidance which he usually gets if family relations are good; if not, he will resort to his peers who may lead him to drugs. These bring about a pleasant, altered state of consciousness which temporarily solves his problems, but it also leads to repetitive drug taking and addiction. It can happen in any family type, depending on the person's personality. Medical treatment, as said elsewhere, gives poor results but **drug-related** disorders can be treated. Occasional users ('transient flirtation') with no psychiatric complications usually only need guidance; but, addicts with infections due to lowered body resistance and depression need to undergo detoxification (1-7 weeks depending on the type of drugs they are addicted to and other factors). This is followed by an assessment of any underlying psychiatric condition or whether the drug has caused any mental disorder, e.g., cannabis addiction leads to severe psychotic illnesses including depression. Other parts of the treatment include insertion in a therapeutic community and meeting ex-addicts; changing friends and locality also helps.

LIVE EXPERIENCES

A mother of an ex-addict and two ex-addicts faced the assembly and related their live experiences. This session perhaps was the most effective in creating that degree of awareness and commitment so necessary to the fight against drug abuse.

It may come as a shock to learn that the mother was a typically 'nice' Maltese lady, who had said like so many others, 'Drugs will not come into my family'! She related her heartbreak at finding out that her son was on heroin and the sacrifices the family went through to rally behind their child, not the least the self-righteous accusations of society.

But her question 'how do drugs reach our children at school?' must have set the educators in the audience thinking. A standing ovation was the least tribute she deserved and rightly obtained.

"THE ONLY WAY OUT OF HEROIN IS DEATH"

The first shy young man, ex-heroin addict told us this. He was only 15 years old when he started. "... not living on this earth..." on alcohol to feel more at ease with his peers, with girls. He then moved to smoking 'grass'. This was his first real decision and an instinctive 'about turn' to prove himself against his 'typically, overprotective Maltese parents'. He was aware of the dangers of heroin, worried about his close friend who had fallen prey to IT whilst away from the island. But, he was also **seduced** by the thought of IT and through curiosity, he tried heroin. He felt a different person, problems brushed aside. He had to build himself a new image, a lie; he committed petty thefts and even peddled the drug (a junkie). But, "I really wanted out!..." and he underwent detoxification. Today he says, "tI would be hard to repeat on a second occasion!" Another standing ovation.

"FOR THE FIRST TIME I FOUND PEOPLE WHO UNDERSTOOD ME (AT DON MARIO PICCHI CLINIC, ITALY)"

Thus said the second ex-addict, another shy young man who based his talk on the three main factors which affect youth favourably or not, namely, society, family and school. It is important to "get away and escape from drugs" because when one is addicted, one is "not living on this earth".

THE WORKSHOPS-DISCUSSION GROUPS

On Saturday afternoon, the assembly resolved itself into discussion groups with recommendations made by the various participants being adopted by the conference. There were six workshops all dealing with various aspects of the acute problem of drug abuse. The following are the workshop titles:

1. The Role of Educators and Parents in the Fight Against Drug Abuse.
2. The Attitude of Society to Drug Abuse.
3. The Effectiveness of Legislative Measures in the Fight Against Drug Abuse.
4. Primary Prevention of Drug Abuse — Information, Awareness and Education.
5. Rehabilitation, After-care and Social Reintegration of the Drug Abuser.
6. Peer Pressure and Drug Abuse.

It was a gerat disappointment to the would-be participants of workshop no. 3 that this was not held on the grounds that there were too few applicants. It was generally felt that even five persons would have given a valid contribution to a discussion on such an important subject as the effectiveness of legislative measures in drug abuse.

The discussion group in which we participated was workshop no. 4, indeed drug awareness and prevention proved to be of marked interest so much so that the

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participants were divided into two separate groups. Our group was chaired by Mr. J. Sammut of Caritas and the secretary was Mr. Cusens, a parent and a member of the Chamber of Engineers. The members included Mgr. Victor Grech, headteachers, teachers, nuns, parents, social workers, Supt. Joseph Psaila and a policewoman with experience in drug abuse education, friends of addicts and other interested persons.

We realised that there is a general lack of information on illicit drugs and their abuse especially expressed by mothers of teenagers and younger school children who seem to be easily approachable even at school.

Such themes as, whether more information on drugs and their abuse is necessary; whether we feel that there is a real drug problem in Malta; whether we should keep a low profile on this problem or if on the other hand a full blown national campaign against drug abuse is in order were discussed and more than one participant took the floor on these issues. How can I tell that my child (or pupil or friend) is on drugs? What can we do to keep our children off the streets? These were typical questions asked.

There was a general consensus on the need of educating parents and that educators must first receive correct information and training.

THE PHARMACISTS' ROLE

It may be interesting to note at this point that there is a particular ignorance on the importance of the role of the pharmacist in the context of drug abuse prevention and education; but more so, and perhaps more seriously, of his role, in general, as a health professional. Our mere identification with the profession immediately brought about a near accusation of indiscriminate dispensing over the counter of 'drogi' and the volunteering of gratuitous advice, thus, indirectly or directly, contributing to aggravating drug abuse.

Our participation was on the lines of presenting the community pharmacists as health educators, imparting correct information and advice on illicit drugs to parents and interested persons within the community; distributing printed information from pharmacies and displaying suitable visuals, all according to a carefully planned campaign for drug abuse prevention through education; subsequently, reaching schoolchildren and other groups through talks and suitable audiovisuals aids. All of this is in line with the work being carried out by PADA — Pharmacists Against Drug Abuse Foundation of the USA — with which the Chamber of Pharmacists has been collaborating for some time.

Our commitment was however finally comprehended and pharmacists were included in the list which made out the team which is to tackle the drug epidemic, including medical practitioners, social workers, the welfare service, the family, the judiciary, the Church, the government and voluntary organizations, but again unfortunately, when this recommendation was read out to the general assembly on Sunday morning, pharmacists were not included nor were they mentioned in the final report of the conference which was circulated to the participants and sent to the Government, Church Authorities, to all Members of Parliament, to the Secreary General of the Council of Europe, to the Maltese and Overseas Press and to all those who work in the field of drug abuse.

A letter of protest has been sent to the Chairman of the conference.

OUR COMMITMENT

This does not however deter us from taking steps to implement the Chamber's plans on drug abuse prevention through education. A course on drug abuse for pharmacists is presently underway at the Federation of Professional Bodies, in collaborating with Caritas and sponsored by Associated Drug Co. of Valletta. This is only the beginning.

In conclusion, we congratulate the Lions Club (Malta) for taking the initiative to organise such a conference. It was indeed very fortunate to have such a panel of experts who shared their wealth of experiencees in this field with the participants at this international conference.

(continued from page 13)

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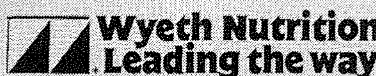

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Theriac

A SELECTED ANNOTATED BIBLIOGRAPHY OF THE HISTORY OF THERIAC

Imelda Serracino Inglott B.Pharm., M.Sc.

Origin

Theriac,also treacle in the English language, was a complex antidote and one of the most ancient medicaments which was already in use in the second century before Christ.

The French term for theriac is thériaque, the Latin theriaca, whilst in Greek it is known as theriake. Theriake was derived from theriakos (of wild or venomous beasts); hence theriac or theriake was an antidote which was primarily used against the bites of serpents, then against poisons in general.

The great antidote in Roman pharmacy was Mithridatium, a pompous formule, which, it was professed had been discovered among the papers of Mithridates, King of Pontus, in Asia Minor from 114-63 B.C. captured by Pompei. It is noteworthy that Plutarch in his 'Life of Pompei' mentions that certain love letters and documents helping to interpret dreams were among these papers, makes no allusion to the medical recipe; while Samonicus states explicitly that notwithstanding the many formulae which had got into circulation pretending to be that of the geuine confection, the only one that was found in the cabinet of Methridates was a trivial one, composed of 20 leaves of rue, 1 grain of salt, 2 nuts, and 2 dried figs.

The compound however was very popular. [14] Great physicians studied it with a view of improving it. The modified formula of Andromachus gained the highest reputation. Andromachus, a native of Crete and physician to Nero, in the first century, added the 'flesh of vipers' to the ingredients and named it Galene 'Tranquility'. [13] Andromachus described the virtues of his compound in Greek elegiac verses which he dedicated to Nero, and which were preserved by the Grecian Galen. [14] It was mostly through Galen's recommendation that Theriac rose to the level of internationally renowned panacea.

Theriaca Andromachus survived notwithstanding its absurdities and continued to be used through History up to the eighteenth century.

Composition of Theriac

In the composition of Theriac went herbs, animal substances, and minerals. Wine and honey were included as valuable stimulants or restoratives. As A. & G. Bouchartat state in their Formulaire Magistral "this electuary incorporates the most different ingredients one can think about: stimulants, tonics, astringents, antispasmotics and above all opium. [2]

Theriaca Andromachus contains 65 odd ingredients. To these individual ingredients, Galen in his two books 'Antidotes and Theriake' ascribes certain qualities or powers. These fall under four descriptions: heating, chilling, drying and moistening. For example frankincense is in the second order of heating and the first for drying, while opium is of the forth order of both heating and drying and is sharp and bitter. Crocus is slightly astringent, in the second order of heating and first in drying. As for animals, viper's flesh is drying, strongly diaphoretic and moderately heating while castoreum heats and dries. All earths and minerals chill. [7 & 6]

Under the heading 'Confectiones opiatae' in the Facsimile of the first edition of The Pharmacopoeia Augustana of 1564, we find Theriaca Andromache as written by Galen. In the numerous ingredients the following are present: Lozenges of theriac, long pepper, opium, dried red roses, iris, liquorice, vipers, cinammon, opobalsamun, myrrh, crocus, cassia, hard black pepper, rhubarb, ginger, cinquwfoil, gentian, anise, fennel, cardamon, castoreum, aristolaochia, lesser centuary, galbanum, honey and wine, wall germander, hartwort, frankincense, onion, wild rue, crocus, petroselinum, bitumen, opapanax, [11] lemnian earth and calx.

Towards the 19th century we find less and less ingredients, as can be seen by the less than 10 ingredients of Theriaca Edinensis as given in P. Mac Ewen's Pharmaceutical Formulas. [8]

Uses of Theriac

The enumeration of the medicinal properties of this antidote were numerous from the very first time it acquired its fame by the verses of the Greek elegiac written by Andromachus, to describe the virtues of this miraculous remedy. It was attributed the power to counteract all poisonous bites of venomous animals. Besides it could relieve all pain, weaknesses of the stomach, asthma, difficulty in breathing, phthises,

colic, jaundise, dropsy, weakness of sight, inflammation of the bladder, and of the kidneys and plague.

Galen in a letter to his friend Piso, praises the virtues and uses of Theriaca Andromachus. Galen writes that it is very good against the biting of all wild beasts and serpents, against poisoned medicines... It is also good against headaches, dizziness and hearing loss. It mends the dullness of the eyesight, helps the falling sickness and them that cast out blood... William Turner in his 'Book of Wines' [12] quoting Galen says 'This theriac is good also for them that are of perfect health, if they take it oft. With the use of this treacle, I have oft times helped those that had the disease called in Greek elophantiases (and now commonly called Lepre or leprosy). It is not only good for the body, but also for the mind or if it be oft drunken, it health melancholic diseases, and wasteth away black choler by reason whereof it is also good for the fever quartan which cometh of black choler, otherwise called melancholy'.

As a remedy against pestilence this is how Turner advocates the use of theriac. "As Hippocrates drove away the pestilence out of Athens with great fires made of spice woods and sweet flowers... even so this treacle like a scouring or purging fire will not suffer them that take it in before they be infected, to be infected at all, and delivereth them that are infected already, if they take it in afterwords, changing the malicous poison of the air which they have received by breath and suffereth not the disease to spread any further."

Of the treacle sald, Tu-ner writes out of Actuis "The treacle is good for all things that the great treacle is, it is chiefly commended in helping the diseases of the skin, as the white morphew, the 'Lepre' of the Grecians and Scriptures, the wild scrurf... thinness and falling of hair."

Dosage, Administration and Price

Helias, Patriarch of Jerusalem had strong faith in Theriaca and gives minute directions for its administration. "Theriaca", he says, "is a good drink for all inward tenderness, and the man who so behaves himself as is here said, he may much help himself. On the day in which he will drink Triacle he shall fast until midday, (and not let wind blow on him that day); then let him go to the bath, let him sit there till he sweats, then let him take a cup, put a little warm water in it, then let him take a little bit of triacle, and mingle with the water, and drain through some thin raiment, then drink it, and let him then go to bed and wrap himself up warm, and so lie till he sweat well; then let him arise and sit up and clothe himself and then take his meal at noon (three hours after midday), and protect himself earnestly against the wind that day. [14]

Helias does not say what he meant by 'a little bit'. In Galen's letter to Piso however we find the dose as 'if it be taken in the weight of the bean of Egypt, with three ciathes (cyathus plcyathe which means ladle-measure) of warm water, that is, about the measure of four ounces and a half.' [12]

Sometimes galene was drunk with wine. It was unadvisable to take it after a heavy meal and the amount varied from the size of an Egyptian bean to the size of an Avellan nut. If taken prophylactically a smaller dose was recommended. Full bodied persons and those in the prime of life were advised to take it seldom and sparingly but it was never given to children. Old people were to take it with wine instead of water. Again Galen advised his patients not to take it in summer or in a hot climate.

Regarding the cost of Theriaca, in Occo's Pharmacopoeia Augustana of 1581, we find an official list of prices for a number of drugs amongst them theriac. Prices refer to one-half ounce quantities:—

Theriaca Andromache	12Kr.
Theriaca Comunis	4Kr.

This price is comparable to that of opium and Cassia pulp. It is 12 times the price of the common ointment which is listed at 1Kr and distilled water which is marked at $\frac{1}{4}$Kr. [11]

Public preparation of theriaca

During certain periods and in certain countries, the composition of theriac was regarded as being of sufficient importance to have it made under the supervision of representatives of the medical faculty. Two reasons may be cited for the preparation under supervision: [14] because certain drugs were too complicated for the pharmacist to accomplish on his own and so were carried out in common [5] and [13] as a measure against the fraud in the manufacturing and preparation of medicaments and against adulteration. [3]

As a measure against fraud and adulteration a commission called "Giustizia Vecchia" was nominated in Venice in 1172. This had to supervise the Druggists and Pharmacists who want-

72

CONFE
CTIONES
Opiatæ.

THERIACA AN
dromachi senioris,
ex Galeno.
*

℞ Trochiscorū scilliticorum drachmas quadraginta octo.
Trochiscorum theriacorum
Piperis longi
Opij
Magmatis hedychroi ana drachmas viginti quatuor.
Rosarum rubearum siccarum
Iridis Illiricæ
Succi Glycyrrhizæ
Seminis buniadis (i. napi sylvestris)
Scordij
Opobalsami (vel eius chariophyllorū)
Cinamomi
Agarici ana drachmas duodecim.
Myrrhæ
Costi
Croci Orientalis
Casiæ ligneæ veræ
Nardi Indicæ
Schœnanthi
Thuris masculi
Piperis nigri
Foliorum dictamni Cretici
Comarum marrubij
Rhabarbari
Stœchadis
Seminis petroselini
Calaminthæ montanæ
Terebinthinæ Chiæ
Zingiberis
Radicum quinquefolij ana drachmas sex.
Polij

73

Polij montani & albi
Chamepityos
Styracis Calamitæ
Meu
Amomi (pro eo Calami aromatici.)
Nardi celticæ (id est, Romanæ.)
Terræ Lemniæ, (aut boli Armeniæ veræ.)
Phu
Chamedryos
Folij (eius loco macis.)
Chalcitidis tostæ
Radicis gentianæ
Anisi
Succi hypocistidis
Carpobalsami, (vel eius succedanei.)
Gummi Vermiculati
Seminis fœniculi
Cardamomi minoris
Seselios
Acaciæ
Thlaspi
Hyperici comarum
Ammios
Sagapeni ana drachmas quatuor.
Castorei
Aristolochiæ tenuis (id est, longæ.)
Seminis Dauci Cretici (pro eo semen Pimpinellæ nostræ.)
Bituminis Iudaici (id est, Asphalti.)
Opopanacis
Centaurij minoris
Galbani recentis ana drachmas duas.
Mellis despumati libras quatuordecim, vncias tres,
Vini optimi odorati, quantum sufficit, pro dissoluendis liquoribus & succis.

Hic animaduertendum est, omnes theriacæ compositiones, quæ apud Galenum varijs locis reperiuntur, etiam diuersorum authorum, recipere insuper.

K ii Acori

74

Acori drachmas quatuor.
Piperis albi drachmas sex.

Conficitur autem hoc modo secundum Galenum. Herbæ, Flores, fructus, semina, radices, cortices, trochisci, terra lemnia, chalcitis & bitumen, diligentissime conteruntur pistillo ferreo in mortario æneo, et crebro subtilissime cribrantur, semine thlaspi, napi sylvestris & croco exceptis, quæ per se teruntur, Vt non rigantur, ne mortario interiori hæreant, & ut commodius coterantur. Gummi, succi et castorium per se terantur, adfuso vino ut etiam commodius teri possint. In ipso compositionis tempore, omniumque rerum mixtura, primū liquefit Terebinthina in duplici vase cum mellis pauxillo, deinde etiam opopanax, galbanum, sagapenū, bene antea per se trita adfuso pauculo melle, vt facilius digitis explanentur cōmisceanturque atque vniantur. Postea coquuntur in ipso duplici vase cum Terebinthina, donec ad iustam consistentiam redacta sint, his admiscetur pars aliqua contritorum, tum etiam in vino dissolutorū, donec melli consistentiam consequantur, deinde in mortarium vastæ magnitudinis effunduntur in hunc modum. Primum pars aliqua eorum quæ liquefacta sunt in duplici vase, eaque tepida, probè agitentur rudicula, & sic consequenter de residuo faciendum, donec omnia probè vnita sint, & hæc quidem ad solem, ut facilius fiat, continuo agitando, et tundendo pila ferrea inuncta oleo

oleo chariophyllorum ut facilius agitari possint, & cōmisceatur etiā opobalsamū reliquis, alioqui facile adhæreret pistillo medicamentum et difficilior fieret agitatio. Hæc continuè per quatuor aut quinque dies agitanda sunt, & rursus elapsis sex aut septem diebus iteranda agitatio per duos menses, Deinde reponitur medicamentum vasculis plumbeis, aut terreis bene coctis & vitreatis. Chalcitis quæ in hoc medicamen venit, sic præparanda est. Illius bona quantitas in olla cruda, succensis carbonibus coquitur, eaque liquefacta vbi bullas emiserit, partem supernam in marmor effundes, atque illic sines in vmbra donec frigeat. Hinc postea solummodo capies quod supernè spumeum fuerit, quodque cinerei est coloris, aut prassij, non quod flauū est, theriacam enim colore flauo non nigro inficeret. Ea aūt cum Vino trita & dissoluta medicamento admiscetur.

THERIACA DIA
tessaron, Mesuæ.
*

℞ Gentianæ
Baccarum lauri
Myrrhæ
Aristolochiæ rotundæ ana vncias duas.
Mellis despumati libras duas.
Coquantur ut artis est.

THERIACA
communis.

K iij ℞ Radicū

Pharmacopoea Augustana — 1564: A facsimile of first edition published by the State Historical Society of Nisconson.

ed to be enrolled as "Aromatarci". In 1258 this supervisory committee was modified by the formation of a mother committee called "Capitolare Medicorium et Spetiarorum". The latter committee regulated mutual relations and ordered that "any compound which cost more than two pence, had to be presented to the board or had to be prepared in the presence of municipal authorities." The complicated compositum of theriac caused this preparation to be prepared in the presence of municipal authorities especially since at these times there were no means of detecting any falsifications.(3)

In Venice the public preparation of Theriac was a very important event. An account by the dairist Evenlyn who visited Italy in 1645-6 describes the preparation of theriac as having all the character of a great propitiatory ceremony, and public festival. All the public squares and the courtyards of hospitals and monasteries in Venice were transformed for the occasion into great open air theatres adorned with rich damasks, with busts of Hippocriates and Galen, and with great majolica jars destined to receive the precious medicaments. Grave and important personages, moved to the applause of the crowds in an atmosphere of rejoicing and expectation.

In some cities of Italy, the ingredients for the preparation were exhibited for three days prior to the actual preparation. The actual making of theriac was preceded by an oration delivered by the leading physicians of the city. Only the leading pharmacists who were vested with the office of 'Triacante' were allowed to make the theriac and always under the supervision of the chief Physicians. (4)

To ensure that the principal ingredients for this medicament were brought from Venice, the Venitian druggists made their own herbals as well as viper-gardens for the production of vipers used in this medicament. (8) Theriac and troches of vipers become such important drugs for export that they become called Venitian Treacle and Venetian troches of Vipers. The latter were exported for the local preparation of

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Theriac and helped to enrich the commerce of Venice. (5)

In Germany the first public manufacture of Theriac was celebrated solemnly at Nurnberg on November 9, 1594 to January 10, 1595 under the patronage of the Senate. (8)

Perhaps nowhere more than in France was Theriaca so popular and its preparation celebrated with pomp. In the 14th century it was already known and Charles VI (1380-1422) used to carry theriac in a little golden casket as a safeguard. Antoine Colin, master Apothecary and Judge of Lyon, in 1519 prepared Theriac in the presence of lieutenants, magistrates and the Medical Profession. (13 & 8)

Around 1710, the society of the retailing apothecaries took the resolution that for the good of the people and for the honour of the community they should publicly prepare every year or on alternate years, Theriaca and Mithridatum in the large Garden Hall of the Community, so that no body will doubt the exact composition of this antidote.(3)

In 1730 the public preparation of Theriaca was confined to a 'Theriac Society'. This 'Theriac Society' received its certification from the Faculty of Medicine in 1731.

When the society of Apothecaries or Theriac Society were in the process of publicly preparing Theriac of Andomachus, it was a big feast. The society first went to the Magistrates to ask them to assist in the opening ceremony, then they proceeded to the Universities to invite the dean to attend accompanied by a deputation of doctors. Two professors of pharmacy usually attended them. (3 & 13)

Such a pompous ceremony took place on October 1776 and September 1784. 6 years later on September 9, 1790 the Society made once more the Confection of Theriac. This was the last preparation made by the Society of Theriac which expired on July 2, 1792.

The decline of Theriac

In England with the spirit of scientific enquiry of the 18th century, the powers and universal remedies of theriac began to be doubted. In 1745 when a new London Pharmacopoeia was about to be isued, Dr William Heberden, a leading physician published a scholarly exposure of the absurdity of the compound. He argued that all the London shops differed from one another in the preparation of Theriac and doubts whether the compounding was being scrupulously done. Furthermore, he said that "opiums or any powerful drug, mixed up into an electuary with so many other things, is against all rules of pharmacy".

However, it was in the Pharm. Londonensis of 1788 that Theraica together with Mithridatum was omitted. Edinburgh followed London's example and in the address to the Reader in the Edinburgh Pharmacopoeia of 1756, the college explains that certain prescriptions introduced by superstition or easy credibility of our ancestors had been banished. These included Theriaca and Mithridatium.

Theriac was omitted from the Austrian Pharmacopoeia of 1814 and was retained in abridged and altered forms in pharmacopoeias of Russia (1798), Prussia (1799), Sweden (1817), and Poland (1817). (1) Only France, Spain and Germany continued to carry Theriaca Andromachus in their official comperdia in the mid-19th century. It was in 1908 that Theriac disappeared for good from the French Codex.

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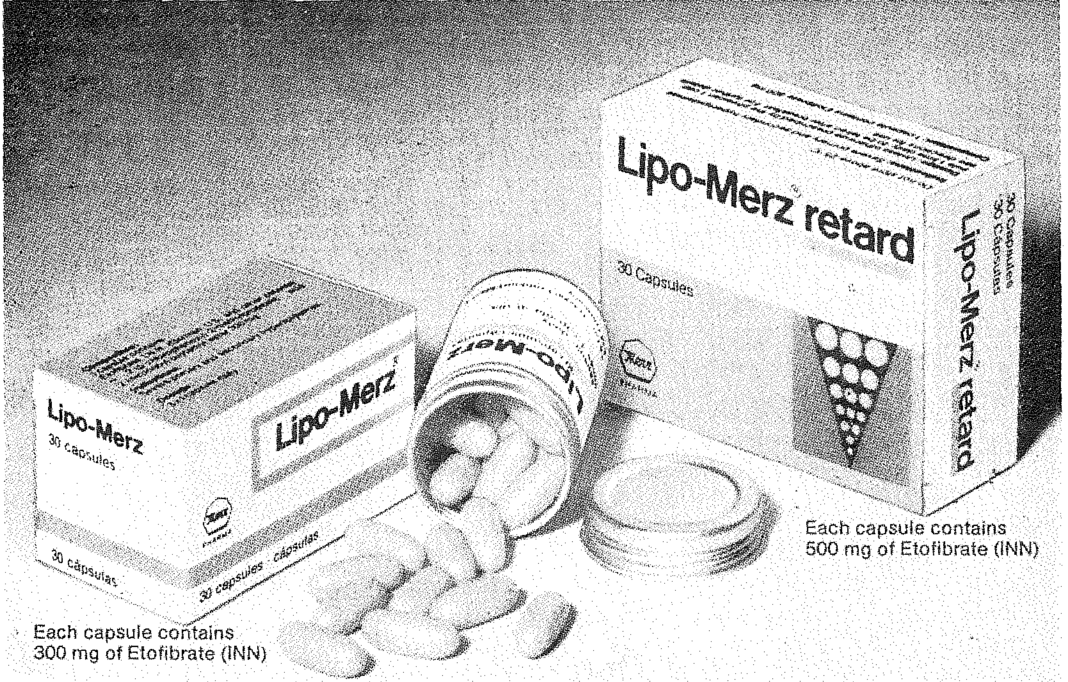

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