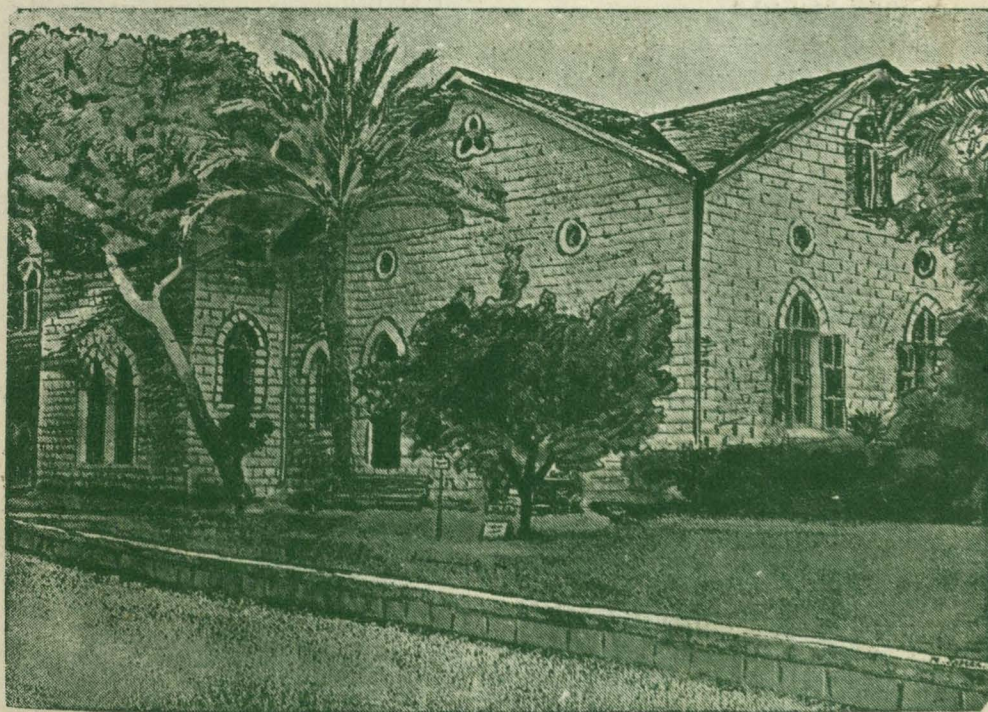




The Apothecary



1948

Magazine Board

Editor : Prof: C. Abou Chaar

Associate Members : Najib Jamal, Hanna Araj, Hani Kawar,
Uthman Kanafani, Yusuf Sanossian, Subhi Nassar

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of The School of Pharmacy, American University
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June 1948

*The front cover sketch of the School of Pharmacy has been especially done for
The Apothecary by Mr. Najib Jamal — Pharm. IV.*

THIS NUMBER OF THE APOTHECARY
IS
GRATEFULLY AND RESPECTFULLY

DEDICATED

TO

OUR BELOVED RETIRING PRESIDENT
BAYARD DODGE



PRESIDENT BAYARD DODGE

BAYARD DODGE

In dedicating this issue of "The Apothecary" to Bayard Dodge, the faculty, staff, and students of the School of Pharmacy wish to pay homage to the man who, for 25 years as President of the American University of Beirut, devoted his efforts and services unselfishly to this institution as well as to this country in the hope of accomplishing a better understanding, cooperation, and appreciation between West and East.

Bayard Dodge was born in New York City in 1888. As his family had been prominently associated with American educational work in the Near East for many years, his interest in it was kindled at an early age. After graduating from Princeton University in 1909 he spent a year travelling around the world, thus having a chance to observe educational and missionary work in the foreign field. Undoubtedly, the impression he received in Beirut during his first contact with this institution helped him later in making the decision to identify himself with it. Planning to enter the ministry, he took his divinity work at Union Theological Seminary and later obtained his M.A. from Columbia in 1913. In September of the same year he sailed for Beirut to become Director of West Hall and Executive Secretary of the College Y.M.C.A.

On February 12, 1914 he married Mary S. Bliss, daughter of the President of the College. Twelve days later the dedication of the building, newly erected to the memory of Dean Robert H. West, took place. During the war years Bayard Dodge made this building - the only main edifice with electric light - the center of entertainments and organized community recreation, working overtime in order to keep all its facilities in maximum use. President Bliss attributed to West Hall in greatest measure the preservation of the normality of student life in the midst of the constant alarm and excitement of World War I. One cannot give too much credit to Bayard Dodge and other staff members who struggled constantly to preserve a semblance of normal life on the campus. Without their efforts the world would have seemed darker than it was and classroom work would have been much less efficient. During this time, and immediately after the armistice, Bayard Dodge also assisted actively in relief work, co-directing a relief center in Souk-El-Gharb and organizing local industries in order to give work to the people of Lebanon that they might find comfort in having something useful to do. This work, so conscientiously and cheerfully carried out, has never been forgotten.

In 1918-19 he went on furlough to America, helped to establish a joint office for all the American colleges of the Near East, and conducted the financial campaign begun in those years in order to wipe out the huge debts which had been accumulated by the colleges during the war years.

He returned to Syria in 1920 and gave his services as Director of the Near East Relief for Syria and Palestine, winning the love and gratitude of Arabs, Jews, Armenians, and many other national and religious groups. In the midst of all these activities he still found time to study Arabic, which he speaks fluently. His varied contacts gave him a knowledge and understanding of the people which men, lacking his experience, could never have acquired.

When called to the presidency of the institution, which had changed its name just after the war from "Syrian Protestant College" to "American University of Beirut", he ascertained the needs, presented recommendations for meeting them to the Board of Trustees in New York, then spent a spring of intensive work in Paris, preparing himself in the fluent use of the French language, and returned to Beirut for his formal inauguration which took place at Commencement on June 28, 1923. In the next 25 years Bayard Dodge efficiently guided the University in a period when its facilities were ever taxed by continued increase in enrollment and where its usefulness to the country was ever expanded by the building up of courses and departments which catered directly to the needs of the people, all at a time when political neutrality had to be strictly maintained. He is also to be remembered for having brought the University safely through the Second World War by means of a tremendous pace of work, ceaseless efforts, and continuous social generosity.

He was also a Trustee of the Board of the League of Nations for the Settlement of the Assyrians (1936-41), a member of the American Red Cross Committee for Lebanon (1941-42) and a member of the Committees: "Société d'Encouragement de Tourisme", "Société des Amis des Arbres" and "Musée National Libanais". In recognition of his work during both peace and war time President Dodge has received the following honors: LL.D. from Occidental College (1926), Order of Merit, 2nd Class (Lebanon 1927), Order of the Legion of Honor, Chevalier Grade (1927), Order of Merit, 1st Class (Syria 1937), Greek Grand Officer of the Royal Order of the Phoenix (1937), Order of Merit, 1st Class (Lebanon 1937), Order of Public Instruction (Lebanon 1942), Decoration of Public Instruction (Iran 1942), Officer of the British Empire (1946), Order of the Cedar, Commander Grade (Lebanon 1947).

Students and graduates who knew him will always remember him for his buoyant optimism, his sincere christianity, his thorough democracy, his sound advice, and his belief "that good-will and faith in spiritual things can live and even increase, regardless of what is going on in other parts of the world".

President Dodge retires from his active life here this June, but he leaves with a'l of us a lasting memory. May he and Mrs. Dodge have many happy and fruitful years in the United States.

Editorial

This is the third annual issue of The Apothecary. The Apothecary has gradually grown in size and in quality, but has kept to its purpose of bringing to its increasing circle of readers the new in pharmacy and to the Alumni the news of their school.

A new feature has been introduced into this year's number, namely, abstract summaries of the seminars delivered by the senior class. These seminars cover diversified fields of pharmaceutical interest, and review some of the new drugs in pharmacy and medicine. We are grateful to Dr. R. J. Pauly for suggesting this feature and for preparing the abstracts to the seminars. The original papers are kept in the Director's office, at the school, where they are available to any one who wishes to consult them.

The Magazine Board has been very fortunate this year to have the benefit of the valuable service and counsel of our Director, Dr. R. J. Pauly. We wish to thank him for his great help to us in the editing and publishing of this number.



MESSAGE TO THE GRADUATING CLASS

Once more I am glad to be congratulating a group of graduating Seniors in Pharmacy on their having successfully completed their professional studies. You, the Graduating Class of 1948, have finished your work during a very troubled period. It has been difficult for many of you to concentrate on your lessons when friends, relatives, or family were under constant threat of danger in Palestine. You may well wonder whether it has all been worth it and what principles one can hold onto when leaving the secluded academic life to take up one's task outside.

As we look about us we are more likely to blame others rather than ourselves for the existing conditions, the turmoil, and the insecurity all around. But when we go deeper into the matter we cannot help but realize that no nation or group of people are better than the individuals that make up that group or nation. In other words it all comes back to the individual. You are leaving the University to enter your profession as individuals. The one thought that I would like to give you is the realization that you will some day be responsible individuals in your own community. The way you live, the manner in which you treat others, as well as the quality of your work and your thoughts determine the conditions around you. To contribute constructively to your community and to try to live up to your highest ideals will give you true happiness and contentment.

It is a fact that we have to live with ourselves all our life. You can only be happy with yourself if your life has been conducted in such a way that you really feel you have accomplished something useful and have a perfectly clear conscience. If you have this assurance you will be an example to your community, a respected citizen of your country and a credit to your profession and your Alma Mater.

Prof. R. J. Pauly

PHARMACY II NOTES

- J. Abadi Ain-el-Mreisseh, Beirut, birthday July 27.
 "It is the mind that makes the body well or sick".
- B. Alahaydian Avenue Weygand, Beirut, birthday Sept. 29.
 "I don't think much of a man who is not wiser today than he was yesterday".
- A. Bem Polish Hostel, Beirut, birthday June 3.
 "Live for today! To-morrow's light, To-morrow's care shall bring to sight;
 Go sleep, like closing flowers, at night. And Heaven thy morn will bless".
- F. Farraj Madab, Transjordan, birthday August 9.
 "Self-reverence, self-knowledge, self-control - these three alone lead life to sovereign power".
- J. Herman A.U.B., birthday June 24.
 "What is this life if full of care
 We have no time to stand and stare".
- S. Kevorkian Rue Sissi No. 5, Aleppo, birthday July 1.
 "Eat, drink and be merry for to-morrow you shall die".
- N. Khalluf Rue Jeanne d'Arc, Beirut, birthday June 28.
 "Hoping and waiting is not my way of doing things".
- F. Kusus Amman, Transjordan, birthday April 15.
 When Thales was asked what was difficult, he said
 "To know one's self", and what was easy, "To advise another".
- S. Manushakian Photo Arax, Rue Tillel, Aleppo, birthday ?
 "Our success depends upon the use of our time".
- H. Mekhtchian P.O.B. 4025, Jerusalem, birthday December 25.
 "He who wishes to be great must collect himself, only in restriction does the master show himself".
- P. Partikian P.O.B. 4001, Jerusalem, birthday December 4.
 "Happiness is a perfume you can not pour on others without getting a few drops on yourself".
- R. Salfiti Salt, Transjordan, birthday January 4.
 "No man can be great or good or happy except through inward efforts of his own".
- Y. Sanossian Karak, Transjordan, birthday April 15.
 "To business that we love we rise betime, and go to't with delight".
- T. Tutelian Pharmacie Massis, Tyre, birthday November 1.
 "The rule of my life is to make business a pleasure and pleasure a business."
- M. Widacka A.U.B., birthday January 1.
 "A merry heart doth like a medicine".
- M. Yarid Irbid, Transjordan, birthday May 1.
 "Attempt the end and never stand to doubt;
 Nothing's so hard, but search will find it out".
- F. Zaru Ramallah, Palestine, birthday April 5.
 "One thing better than success is to be worthy of success".

Nadim Khalluf, Phar.II.

Auguste Comte, a French philosopher, once said "You can know little of any idea until you know the history of that idea". I was fully reminded of this when I read George Urdang's brochure "Pharmacy's Part in Society".* In his profusely illustrated booklet, Dr. Urdang gives an account of the contributions of pharmacists to the various fields of human endeavour. Many great men of science whose names are familiar to us appear to have been pharmacists or pharmaceutically trained men who have been claimed exclusively as members of professions other than pharmacy by non-pharmaceutical authors. Unless pharmacists and students of pharmacy realize what a rich legacy these former pharmacists have left us, they are likely to belittle their profession and, in their practice of the profession, fall short of their heritage and sink deeper in the apathy which many of them now have toward their vocation. Few pharmacists and students of pharmacy show the healthy pride and the deep interest which is expected of them in their chosen profession. The practice of pharmacy has lagged behind and has become very narrow in its outlook. The ordinary pharmacy, in Beirut, for example, has not changed much in appearance, in fixtures or in equipment from what it used to be some fifty years ago. Students return from their period of apprenticeship greatly disappointed and disillusioned: dark dispensing room, inadequate apparatus, lack of up-to-date books, ignorance of the tutor who most often is not a licensed pharmacist, lack of a definite code of practice, long hours of work, and disinterestedness in learning about the new things in pharmacy evidenced by the absence of any current pharmaceutical magazine on the desk of the pharmacist.

The practice of medicine has changed and drugs have also changed. New forms of drug administration have developed. Pharmacy, as practiced in the pharmacy, has not risen yet to meet the new demand; and so the demand is being met by other than the practicing pharmacist. Pharmacists, with their pill machines inherited from their fathers, still wait every new morning to roll some pills which now become fewer every day. They must practice some newer skills also, if they are to survive. Where is the clean corner and the necessary apparatus for filling ampoules, for making tablets, for sterilizing preparations? Where is the refrigerator in which to store the antibiotics, the sera, the vaccines, the glandular preparations and other drugs requiring low temperature storage? Where are the drying oven, the homogenizer, the ointment machine, etc., etc.? However, it is heartening that a few pharmacists in Beirut have already begun modernizing their pharmacies and equipping them with some of these modern tools and refreshing themselves with the new in pharmacy. It is heartening that every year a few ambitious young men go out into the profession with high hopes and energy, who dream of having better pharmacies and have the steadfastness to stay by their ideals. I wish to encourage them by reminding them that all the big pharmaceutical firms were founded in the back laboratory of the pharmacy by pharmacists who had the foresight and the energy to go out and meet the coming new world and were the early birds that caught the worm.

*Published by the American Institute of the History of Pharmacy, Madison, Wisconsin, U.S.A. 93 pages, 1946. Catalogued in the Medical Library of A.U.B. under call-number S 40 :U74 ph.

Pharmacy has been the father of many modern sciences. We rarely stop to realize that these have come out the back door of pharmacy and that pharmacists assisted at their birth. Modern chemistry as a separate science was developed and advanced in the pharmacy laboratory of such men as Scheele. Many of the great French and German chemists of the 17th and 18th centuries learned chemistry at the hands of pharmacists in the back laboratory of their pharmacies - such laboratories, being in many cases, the only well equipped chemical laboratories available. Pharmacists have contributed to botany, to plant chemistry, to bacteriology, to biochemistry, to pharmacognosy, and even to agriculture, physics and general culture. Pharmacists have helped establish many scientific periodicals which now do not deal with pharmacy and have served their communities in many many ways. To read Dr. Urdang's book is to realize what debt we owe those men who gave pharmacy the best in them and brought honor to the profession. The pioneering spirit which they brought to pharmacy must not die away and stagnation must not creep and spread over what was once the heart of the scientific world - the Pharmacy.

Prof. C. Abou Chaar

THE OLD ELEPHANT STORY

Repeats itself in our

SCHOOL OF PHARMACY

A number of our teachers went elephant hunting last summer. Being of a literary turn of mind, these gentlemen wrote some books on their trip back to Beirut.

The Apothecary takes pleasure in announcing their titles in advance:

"A Survey of PHARMACOPOEIA ELEPHANTIAE"
by Dr. R. J. Pauly.

"Plant Life in Elephant-Land"
by Prof. C. Abou Chaar.

"A Semi-Micro Analysis of the Elephant Systems"
by Prof. F. Istfan.

"Taming of the Baby Elephants"
by Mr. E. Vorperian.

"Manufacturing Facilities in Elephant-Land"
by Mr. L. Karamanukian.

H. Dürüst, B.Sc., Phar.I

SUMMARY OF LATEST KNOWLEDGE ON PENICILLIN

Penicillin is the antibiotic substance or substances produced by the growth of the molds:

Penicillium notatum Westling
and Penicillium chrysogenum Thom

(Fam. Aspergillaceae)

Crystalline Penicillin G, in the form of its triethylammonium salt, has been recently synthesized by du Vigneaud et al.

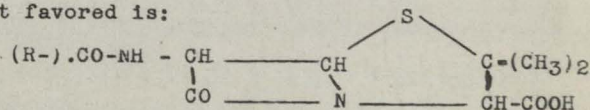
Chemistry: Due to the kinds of cultures, the different methods of preparation and the different strains of the mold used, it became apparent that there are many kinds (molecular species) of penicillins, differing chemically and biologically.

The different molecular species are termed:

1. Penicillin F in U.S.A. or Penicillin I in England
2. - G - - - - - II - -
3. - X - - - - - III - -
4. - K - - - - - the same name in England
5. - di-hydro-F (a new factor in Penicillin F)

All these different Penicillins possess the same fundamental structure, but differ in the substituent group replacing (R-)

The formula most favored is:



They are all strong monobasic acids and form salts readily; the Calcium and the Sodium salts being official in the U.S. and the Potassium salt also available on the market.

These soluble salts are reprecipitated by acids. The acid is much less stable than the salt.

Penicillin Calcium is the least hygroscopic and it is the one used in oil suspension, tablets, troches and ointments.

Prior to 1944 commercial Penicillin was chiefly Penicillin G or a mixture of G and F.

Later the varieties F and K increased and G decreased.

At present Penicillin G predominates.

Any Penicillin for oral or parental use should contain less than 30% of Penicillin K (for reasons: see under Penicillin K).

Penicillin Unit: Before 1944 the potency of penicillin was stated in terms of Oxford Units (also called Florey Unit). This Unit is that quantity of Penicillin, which, when dissolved in 50 cc. of a meat broth is sufficient to inhibit completely the growth of a special test strain of *Staphylococcus aureus*.

Late in 1944 an International Standard Powder for Penicillin was adopted, it consists of crystalline Penicillin G Sodium. The bio-

logical activity corresponding to 0.6 micrograms (0.000006 Gms) of this powder represents the International Unit (I.U.).

The International Unit (I.U.) is identical with the U.S.P. Unit and is almost the same as the old Oxford (Florey) Unit.

Properties: All penicillins (except the dry crystalline form) and penicillin preparations require refrigeration below 15°C.

All penicillin salts (Calcium, Sodium or Potassium) are very soluble in water, in isotonic Sodium Chloride solution or in Dextrose solutions and diffuse readily.

They are soluble in alcohol but are inactivated by this solvent, by glycerin and by many other alcohols.

The salts' solutions are precipitated by acids.

Penicillin is rapidly destroyed by acids and alkalis. It is most stable between pH 5.00 and pH 7.00.

Molecular Species or Varieties of Penicillins: These many kinds of penicillins are markedly different in chemical and biological properties, they may be separated through differences in solubility and by means of chromatographic adsorption methods.

I. Penicillin F: Penicillin I in England, Δ^2 -penicillin. In the general formula the (R-) radical is the penicillin group ($\text{CH}_3\text{-CH}_2\text{-CH} = \text{CH-CH}_2\text{-}$).

It has an activity of 1550 I.U. per milligram.
In the body it is effective as Penicillin G.

II. Penicillin G: Penicillin II in England, Benzyl-penicillin.

The (R-) radical is the benzyl group ($\text{C}_6\text{H}_5\text{-CH}_2\text{-}$).

The activity of the crystalline Penicillin G Sodium is 1667 I.U. per milligram. It is the form accepted as the Penicillin Master Standard or the International Standard for evaluating the potency of all penicillin products.

It is the easiest to prepare in a pure crystalline form.
It can be assayed chemically (see assay below).
It is the least inactivated by the body and about 3/4 of an administered dose is recoverable in the urine.
It is insoluble in chloroform.

III. Penicillin X: Penicillin III in England, p-hydroxy-benzyl-penicillin.

The (R-) radical is the p-hydroxy-benzyl group ($\text{HO-C}_6\text{H}_4\text{-CH}_2\text{-}$)
Its activity is 900 I.U. per milligram.
It has been found to be many times more bactericidal to certain strains of group A of the hemolytic streptococcus, to pneumococci gonococci and meningococci than all other forms.

Orally it is less well absorbed than Penicillin G.
Like Penicillin G it is not inactivated by the body.
It is insoluble in chloroform.

IV. Penicillin K: Penicillin K or Penicillin JV in England, n-heptyl-penicillin.

The (R-) radical is the n-heptyl group $(\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2^+ \text{CH}_2^-)$
Its activity is 2300 I.U. per milligram.

In vitro it is the most active form, but in the body it is the most rapidly inactivated, destroyed and excreted. It does not act the same way clinically as do the other forms. A very prompt drop in the blood level after injection of the K form was found as compared with Penicillin G.

Only 1/2 of the amount administered is recoverable in the urine. It is assayed chemically.
It is soluble in chloroform.

Federal Standards Specifications (U.S.A.)

1. Amorphous Penicillin: Non-crystalline Penicillin.

It can be either the Calcium or the Sodium salt of one or more kinds of Penicillin.

Its activity should be at least 500 I.U. per milligram, (but if it contains 90% of Penicillin X, its activity must not be less than 350 I.U. per milligram).

The salt expires after 18 months even though kept at 8-14°C. It requires refrigeration below 15°C.

Its sterile solutions may be kept in refrigerator for one week, without significant loss of potency (Note: It keeps longer than the solutions of the purer crystalline forms. It is self-buffered by its impurities (?)).

Its moisture content should not be more than 2.5%.

2. Crystalline Penicillin:

It can be either the Sodium or the Potassium salt (but not the Calcium one).

Crystalline Penicillin is the heat-stable crystalline (Sodium or Potassium) salt of one or more kinds of Penicillin and must be capable of withstanding exposure to 100°C. for four days.

Crystalline Penicillin is stable up to three years in dry form without refrigeration. It expires after 36 months.

Its sterile solutions may be kept in refrigerator for 3 days without significant loss of potency.

Its moisture content should not be more than 1.5%.

3. Crystalline Penicillin G:

It is Crystalline Penicillin, which contains not less than 90% of the Sodium or Potassium salt of Penicillin G, as assayed by the N-Ethylpiperidine method (given below).

Potency:

a. If it is Crystalline Penicillin G Sodium, its potency should not be less than 1500 I.U. per milligram.

b. If it is Crystalline Penicillin G Potassium, its potency should not be less than 1435 I.U. per milligram.

Regarding stability, expiration, etc. it complies with all the requirements of Crystalline Penicillin.

4. Buffered Crystalline Penicillin:

It conforms to all requirements prescribed for Crystalline Penicillin (or for Crystalline Penicillin G, if the Buffered preparation is labelled so).

It contains Sodium Citrate U.S.P. 4-5% by weight as a buffer.

Assay:

1. The Assay for Crystalline Penicillin G:

The antibiotic fraction Penicillin G is precipitated alone from the mixture and weighed as N-ethyl-piperidine-penicillin. The total penicillins in the same mixture are found by adding, to a new sample, a measured excess of 0.01 N Iodine Volumetric Solution and titrating back the excess Iodine with 0.01 N Sodium Thiosulphate Volumetric Solution. The results are compared.

2. The Assay for Penicillin K:

The mixed penicillins are shaken with a mixture of water and chloroform. Penicillin G and Penicillin K are partitioned between these two immiscible liquids. The aqueous and chloroform layers are separated and assayed iodometrically for their penicillin content. The results are compared.

Official Preparations

1. Penicillin Calcium U.S.P.: Penicillin Calcium is available in amorphous form only. It is preferred for Oil suspension, Tablets, Troches, and Ointments.

2. Penicillin Sodium U.S.P.: It can be amorphous, crystalline or crystalline G, and any form can be used if it complies with the Federal Standards Specifications.

3. Penicillin Dental Cones U.S.P.: Composed of Penicillin Calcium and suitable harmless diluents and lubricants, with or without Sulfanilamide or Sulfathiazole. The cones usually contain 1000 or 5000 I.U. each of Penicillin.

They are used in the treatment of socket infections following extraction, being inserted by the dentist into the socket cavity.

They are to be stored in tight containers at a temperature not above 15°C.

4. Penicillin Injection in Oil and Wax U.S.P.: This is a sterile suspension of Penicillin Calcium in a menstruum of peanut oil or sesame oil, in which 3-4.9% w/v of white wax is dispersed. According to the Federal Food and Drug Administration Crystalline Penicillin can also be used. This product when injected intramuscularly provides a depot from which Penicillin is gradually released thus eliminating the necessity of frequent injections.

Injection is made using a dry, warm syringe, the ampul being warmed to body temperature before withdrawing the dose.

To be kept at a temperature not above 15°C.

5. Penicillin Ointment U.S.P.: It contains Penicillin Calcium in a suitable approved ointment base. At present anhydrous bases are used. It should be stored at a temperature not exceeding 15°C.

6. Penicillin Tablets U.S.P.: These contain Penicillin Calcium or Penicillin Sodium with some buffer such as Calcium Carbonate,

Sodium Citrate or Aluminum Hydroxide. They must be stored in hermetically sealed or tight containers at a temperature below 15°C.

Oral administration requires the use of doses four to five times the amount usually recommended for injection, in order to obtain the same blood level.

7. Penicillin Troches U.S.P.:- Composed of Penicillin Calcium or Penicillin Sodium or both and one or more suitable and harmless diluents, binders, lubricants, masticatory substances, coloring and flavoring agents.

Two types of troches are prepared:

- a. Pastille or Soluble type of troches, the base is gelatin, agar or sugars and it is allowed to dissolve slowly in the mouth.
- b. Chewing Troches:- its base is composed of wax and it is chewed over a period of several hours.

They must be preserved in tight containers at a temperature not above 15°C.

Prof. Fuad Istfan

STRICTLY GERM-PROOF

The Antiseptic Baby and the Prophylactic Pup
Were playing in the garden when the Bunny gamboled up;
They looked upon the Creature with a loathing undisguised;
It wasn't Disinfected and it wasn't Sterilized.

They said it was a Microbe and a Hotbed of Disease;
They steamed it in a vapor of a thousand-odd degrees;
They froze it in a freezer that was cold as Banished Hope,
And washed it in permanganate with carbolated soap.

In sulphuretted hydrogen they steeped its wiggly ears;
They trimmed its frisky whiskers with a pair of hard-boiled
shears;
They donned their rubber mittens and they took it by the hand,
And 'lected it a member of the Fumigated Band.

There's not a Micrococcus in the garden where they play;
They bathe in pure iodoform a dozen times a day;
And each imbibes his rations from a Hygienic Cup
The Bunny and the Baby and the Prophylactic Pup.

Arthur Guiterman

B O T A N Y E X A M

It took a little while to tell
The cortical parenchyma
Bordered the epidermis cell-
And here there is no trachea.

The stems of every monocot
Are thin; we draw them where they are.
But who the devil would have thought
The sheath was fibrovascular?

O dicot, phloem is in your stele
Beside the active cambium.
What will the pericycles feel,
And what will endoderms become?

The whole thing is an angiosperm-
The lignins, suberins, and all.
Within the roots, the protoderm
Is waiting at our beck and call.

Seek out the fibres of the bast,
And nodes that one would hardly miss.
What formula has chloroplast,
Which makes for photosynthesis?

Lamellas stalk the term exam....
O karyolymph and vacuole,
The colloids make me what I am,
And no professor has a scul.

Daniel Smythe

from "The New Yorker"



THE PUBLIC ANALYST LABORATORY

Once, a history-major student was asked the following simple question: "What was the age of Pericles?". After a few seconds of confusion, the student regained his wits and answered: "I am not quite sure, but I reckon he was about forty".

We often hear of the post graduate course, at the School of Pharmacy, leading to the Public Analyst Certificate. But I wonder whether the useful and extensive work of the Public Analyst Laboratory is fully known to the students and alumni. I am sure it would surprise most of us to hear that it has a history. It was unfolded to me by Prof. Pauly as follows:

Way back in 1900, James A. Patch, a graduate of Boston Tech., had come to Beirut as instructor in chemistry and physics. At that time those subjects, together with pharmacy and materia medica, were taught in the "Chemistry Building", built in 1893 at a cost of \$ 2000, which building consisted of the two rooms in the present Pharmacy Building now used as pharmaceutical chemistry and pharmacy laboratories. In 1902 the building was remodelled and enlarged to its present form and Mr. Patch was made Professor of Chemistry. What is now the students lounging room used to be his lecture-preparation room and private laboratory. Here he tested the cement which was used in the construction of various buildings on the campus, one of which - West Hall - he designed and also supervised its construction. He was instrumental in starting a new course in Agricultural Engineering in 1914. He must have done some testing of products and materials for townspeople for he was the only accomplished chemist in Beirut at the time, and it must have been in that laboratory that "Public Analyst" work started on the campus, for it was in that place that Prof. Pauly found report blanks for such analyses.

In 1904 our late Prof. Emeritus T. Ladakis had just been appointed Adjunct Professor of Pharmacy after having obtained his degree from the A.U.B. in 1901, and later the Ph.D. from Philadelphia where he won the Remington Prize of a nice analytical balance with silver pans for proficiency in analytical chemistry.

Under the tutelage of these two men the idea of giving special training in analytical work after the completion of the Pharmacy Degree took root. Mr. George Spamapoulos was granted the Public Analyst Diploma in 1919. Prof. Patch retired in 1921 to enter pharmaceutical manufacturing with his brothers in Massachusetts, and Prof. Ladakis conducted such work alone. In the year 1922 two candidates were awarded the Diploma: Messrs. Wadie Itayyim (for the last 20 years analyst in the Government Central Laboratories at Jerusalem) and Isaac Yelin.

Prof. Rudolph Pauly was at that time, 1920-1923, Instructor in Chemistry. When he returned to the University in 1927 as "Adjunct Professor of Pharmaceutical Chemistry and Lecturer of Pharmacology", in spite of a heavy teaching schedule, he willingly accepted to do the few analyses for the University Boarding Department and test an occasional milk sample for the Hospital Kitchen. Once in a while a sample was submitted from the outside. Prof. Pauly has not forgotten the first sample submitted to him for analysis: "It was Mr. Nurr who brought in an ore sample of silvery sheen that he thought might be valuable. It proved to be a good specimen of Galena (Lead Sulfide). We charged only 50 piasters for the work done. Then we didn't know what to do with the money so received. This laid down the plan which was followed so long and which made it possible for us to have this fine library of analytical books now on the laboratory shelves, namely that of giving 1/3 of the receipts to the laboratory for expenses and spending the other 2/3 for books for the Public Analyst Laboratory Library".

Among the analyses of those earlier days were two water samples received from the municipalities of Antioch and Alexandretta. The results issued by our Laboratory initiated the Water Work companies to undertake the construction of new aqueducts to insure an ample supply of potable water to those places. From the Hasbayah region, dolomite rocks were submitted for complete analysis. It was due to the clear judgment and remarks of the analyst which made possible the inauguration of the cement factory in the same locality. In 1929, when the new Chemistry Building, the Out Patient Department and Van Dyck Hall were constructed, the Public Analyst Laboratory contributed its share by mobilizing its work to test the construction materials used.

Then there was the case of a dentist in Damascus who, through diligent study of the ancient manuscripts of Alchemy, had produced a most vile smelling tarry liquid for which he wished to obtain government permit so as to sell it as a toothache remedy. In order to get the permit he had to have a quantitative analysis report on its constituents. After having made the laboratory uninhabitable several times, Prof. Pauly took the sample to the University of Wisconsin where Dr. Hurd finally completed the analysis, after having burned holes through several silver crucibles, and reported its content of arsenic, phosphorous, and sulfur, etc. A little detective work on the part of Prof. Pauly, after his return from his furlough, showed that the material was the product of the destructive distillation of stale eggs; so he submitted Dr. Hurd's report under the title "L'analyse de l'huile d'oeuf pyrogenée."

In 1932 Prof. Pauly organized a team of the faculty for the complete analysis of the "El-Hammeh" Mineral Springs located on the border where Syria, Palestine and Lebanon meet. Part of the analytical work had to be done on the spot. Prof. West (geologist) Prof. Antippa (physicist), Prof. Istfan (chemist-analyst) and Prof. Pauly made up the party which spent three days on the spot measuring the radioactivity, the hydrogen sulfide, temperature and other items that could only be done there. These springs were more noted

by the Greeks and Romans as bathing resorts of therapeutic value than any others known to them. They still yielded their constant flow of healing waters to cure the diseases of camel and bedouin, but, as a result of the analyses made, the springs were built up into a health resort for all and are especially noted for the cure of rheumatism and skin diseases.

Sometimes the results of the laboratory have shocked some of its clients to despair, especially when they thought they would become rich overnight. For the samples of "gold ore" they submitted proved to be only fool's gold (Iron Sulfide), and "diamonds" were found to be but pure quartz. Sometimes the laboratory relieved clients headaches! Take the case of the round-the-world tourist who had lost her favorite physician's, favorite prescription for headache but who still had two powders left in her purse. An analysis of one of the powders indicated its contents, from which the University Physician was able to write a new prescription incorporating the ingredients in their most effective dosages for that particular tourist.

We often complain of living in an age where inventions are difficult due to the advanced state of knowledge in any branch of science. But Mr. Marc Donikian, who worked in the laboratory between 1938-1943 devised an "acidometer" for the quick determination of the acidity of olive oils in the field by the olive growers. The apparatus is now called the "Donikian Acidometer" and is made by the A.U.B. glassblower. Some thirty instruments have been sold in the last ten years.

Christmas is a special occasion when most of us feel happy and enjoy with full delight the family fire-side and the candle-lit tree. The analyst, however, is usually kept busy during these times with various types of poisoning cases arising from confusion due to over-celebrating with alcoholic beverages, tasting the contents of the wrong bottles, children having more access to medicine cupboards, sweet memories.... emotional upsets. Yet a quick analysis often is necessary to save a life.

During the last war, the Public Analyst Laboratory, with its efficient and honest work, has safeguarded the public and the manufacturer from fraud. I still cannot forget the shock of a pharmacist in Beirut, who had bought 56 tins of various quinine salts to be made into tablets, when the laboratory reported that the tins contained a range of from 7 to 16% of quinine calculated as quinine sulfate while the remainder was either starch or lactose. Of five sacks of "santonin" with original seals intact, only two proved to be true. Sunflower-seed oil was detected admixed with olive oil. Lead filings were being sold to manufacturers as pure cerium from which they were trying, without success, to make flint stones for cigarette lighters during the war-shortage of such. In difficult cases of determining the customs duty on articles, our laboratory reports were used as a check upon the official laboratory for such work. The Geological Section of the British Army also turned in some thirty samples of rocks and over forty samples of water from various localities of Syria and Lebanon for analysis. Lately we have been receiving weekly samples of Euphrates water for analysis and for "sedimentation diameter" determination of suspended matter. We hope that the results will help to obtain an adequate supply of potable water for the city of Aleppo.

Wherever the analytical work is likely to become a routine matter, the policy of the laboratory has always been to train one of our graduates, who may have a private laboratory in the city, to

accept such work; leaving our laboratory free for the new and educative types of analytical work. It has been found that there is no better way for an instructor of analytical chemistry to keep up in his field than to participate in such work. In the past 15 years the following Ph.C. graduates have obtained certificates in Public Analysis work either while they were assistants in the school, or by spending full time at it; Messrs Yeznig Balouny (1934), Adib Tayyar (1936), Marc R. Donikian (1943) and Anis Haddad (1945).

It would be easier to give statistics showing the progress of the work. Below are indicated the respective years and the number of analyses performed.

<u>Year</u>	<u>No. of Analyses</u>	<u>Year</u>	<u>No. of Analyses</u>
1927	17	1938	89
1928	13	1939	51
1929	5	1940	45
1930	5	1941	42
1931	3	1942	98
1932	32	1943	79
1933	35	1944	62
1934	77	1945	93
1935	70	1946	145
1936	82	1947	218
1937	105	1948	

This year marks a new era for the laboratory, for it has been moved to new quarters in the Medical Science Building (Van Dyck Hall). The picture shows a corner of the laboratory. It is the hope that more help can be given the community and the country as a whole through its work.

Edward Vorperian, B.A., Ph.C. '44.

A thought for today

"There was a dachshund once - so long
 He hadn't any notion
 How long it took to notify
 His tail of an emotion.
 And so it happened, while his eyes
 Were full of woe and sadness,
 His tail kept wagging merrily
 Because of previous gladness."

"There is hardly anything in the world
 some man cannot make a little worse or sell
 a little cheaper, and the people who consider
 price only are this man's lawful prey." John Ruskin.

INCLINATIONS AND OPPORTUNITIES

As I was reading the introduction of R. Lyman's "American Pharmacy", I came across the following paragraph: "In the obligatory four-year course the American schools of Pharmacy have to give to their students the fundamentals of knowledge, professional responsibility, insight and outlook. What a student later builds upon these fundamentals, depends on his personal inclinations and special opportunities". This paragraph reminded me of the many complaints of pharmacists and pharmacy students about our profession. They complain that the profession is running with giant strides towards commercialism. Is the picture so dark? Are we now doing or can we do anything to bring the profession back to the 'right track'?

The four-year course is giving us enough knowledge to be able to practice dispensing in a scientific way and to understand what we are doing. In addition to this we are getting sufficient education to be able later, with further studies, to enter into one of the many branches of pharmacy. A number of courses are given so that a person can choose a few after his own heart and then develop them. With the courses of Botany and Pharmacognosy, one can enter the field of growing plants of medicinal value. With the knowledge of Chemistry, one can enter the field of Analytical Chemistry. Or one can further study and specialize in Bacteriology or Biochemistry, or even in Pharmacology and Bio-Drug Assay. One of my professors told me that he knows at least seventy-six different jobs, pertaining to pharmacy, or related to it, which his students have undertaken. We can add to this number many more. With so many fields open to us, why then do we look at the black side of the picture only? If some of our colleagues have, unwillingly, advertised and sold patent medicines of little value, and had to do it because they had to survive, is it a reason that we should blame the profession? We should feel sorry for those who have done it and are doing it.

Some of us complain that the field of pharmacy is "supersaturated" in the Near-East. This may be the case with dispensing pharmacists. But how does it happen that with so many 'excess' pharmacists we are still importing from abroad such articles as these: Distilled water, normal saline solution, glucose solution, the ready-made tinctures, and the fluid extracts? Why do we import the tablets which we can prepare here? Or why do we import glycerin which can be obtained from our soap industries? Why is it that we import the tartrates which can be obtained as a by-product from the wine-industry? What about table salt - chemically pure sodium chloride, iodides and bromides? Why is it that we import from abroad so much and so many different brands of cosmetics? The space here does not permit me to count all the pharmaceutical preparations which can and should be prepared in this part of the world.

The thought will come to your mind that the governments in the Near East do not protect these industries. It is true that in many cases the government does not protect them, yet, you as an individual, can you depend for food on the fruits of a tree which has not been planted yet? If not, then how can you expect our governments to protect the industries which are non-existent or which can't still produce enough to supply the needs of the country? My intention here is not at all to tell you to start big factories to produce the above-mentioned products. No European, or other foreign pharmaceutical firm started with their present status.

They either started in the backyard of a pharmacy, or in a single room, first supplying a town, then gradually increasing in size as the demand increased.

We can either fight for our way through life and grasp the opportunities presented to us, or we can sit down and complain. It all depends... It is a matter of character, personal ingenuity, and initiative.

Levon M. Karamanukian, B.A., Ph.C.
'48

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A SONG OF LOVE

In the chemistry lab, on a bright sunny day,
There happened to be an embryo pharmacist
Who sang this love song and could, in this way,
Enter his name on the lover's long list.

Oh X, my lovely star, golden altar of mine
Allow me to give out my strong feeling divine.
Be very sure, X, I really love you
And I am quite sure you love me much too.

For I am an acid and you an alkali,
Of such a great strength that it surely will comply
With laws of nature and books of wise men
That make us approach. The flask ready then!

We thus both coalesce right there into a salt
When at pH seven the reaction will halt
Colorless crystals, all triangulate
Are formed to be called "Loverium Xate".

I am Potassium when you are Oxygen
Ready to catch on fire and then blazing begin.
But no CO_2 is produced right there
A combination of only one pair.

Would to heaven I, as Calcium Hydroxide
And you, dear, as Chlorine, in a flask quite wide
Form disinfectant - Calx Chlorinata
In the B.P. as a new formula.

In this way all different, our characters will mix,
And we love and learn to live till very old age.
The day, we hope, is near when Lover and his X
Will combine in firm, covalent linkage.

Partig Partikian, Phar.II

"PHARMACOPOEA POLONICA"

The first attempt to issue a Polish Pharmacopoeia was made about 150 years ago.

In 1774 the Great Marshall of Poland planned to write a "Dispensatorium" for pharmacists and physicians, but unfortunately this was not accomplished. At the same time a professor of pharmacy at the Krakow University was working on another Pharmacopoeia, but due to his early death his work was left unfinished.

After the second and third partitions of Poland in the years 1793 and 1795 the only official and required books for all pharmacies in the provinces annexed by Prussia, Austria and Russia were the Pharmacopoeias of the corresponding countries. Translations of the Austrian Pharmacopoeia into Polish were done several times by Polish professors of pharmacy.

The next and more successful attempt was made in 1794, when a Military and Hospital Pharmacopoeia was issued in Latin ("Pharmacopoea Castrensis et Nosocomialis Nationalis"). It was dedicated to Thadeum Kosciuszko - a Polish general and an American hero.

In 1810 the General Medical Council of the Great Duchy of Warsaw began the work on a new dispensatorium which was published in 1817 in Warsaw under the title "Pharmacopoea Regni Poloniae"; it was divided into 3 parts:

1. Materia Pharmaceutica - giving the description of 305 crude drugs and chemical compounds. Polish names were also given.
2. Preparata et Composita - having 357 compounded drugs and preparations.
3. Ex tempore preparanda - with 16 preparations which have to be prepared extemporaneously.

This was the first Polish Pharmacopoeia obligatory for all the pharmacies of the Kingdom of Poland.

In 1831 the government published a Military Pharmacopoeia in Latin "Pharmacopoea Castrensis Polonica" and another Hospital Pharmacopoeia in 1833, to replace the old "Military and Hospital Pharmacopoeia".

In 1844 the Medical Council began working on the second edition of the "Pharmacopoea Regni Poloniae", but, because of the illness and death of the chief editor, it was not finished until 1866, but even then, due to the political situation, it could not be published.

In 1916 because of shortage in drugs and medicines due to the war, a new pharmacopoeia had to be published by the municipality of Warsaw "Pharmacopoea Oeconomica", for the city's pharmacies and physicians. In 1917 the General Medical Council appointed a delegation for preparing a new pharmacopoeia which was finally published in 1922, as Pharmacopoea Polonica I. The Delegation of the Medical Council became, by an Act of Parliament, the Permanent Board of the Polish Pharmacopoeia. A second edition of the Polish Pharmacopoeia became official in 1937. The last reprinting of the Polish Pharmacopoeia II appeared in 1946.

The new Polish Pharmacopoeia contains 1125 pages and is divided into five parts:

1. The first part includes on the first page the Act of Parliament on the basis of which the P.P. was recognised as the official book and was made obligatory for all the pharmacies and physicians. Then is given a short history of the P.P., and the list of members of the Permanent Board of the P.P.
2. The second part gives general information on the pharmacopoeia; explanation of the technical terms used in the text; methods of determining melting, boiling, and freezing points; specific gravity; quantitative and qualitative tests; gravimetric and volumetric analyses; alkalinity tests; and assays of animal and vegetable drugs.
3. The third part includes 750 monographs on different drugs. The P.P. resembles more the U.S.P. XII than U.S.P. XIII in that the drugs are arranged according to classes of preparation; Ointments, Spirits, Waters, etc. But there is also an additional classification of drugs according to the part of the plant used such as Folia, Rhizoma, Flos, etc. Thus Belladonna is found under Folium Belladonnae, Chenopodium under Herba Chenopodii and Calamus under Rhizoma Calami. In this system of classification the pharmacist will always remember what part of the drug is used.

The classes and preparations are arranged alphabetically according to the Latin names, which are a little different from the corresponding names in the B.P. or in the U.S.P. Then follow the Polish title, the synonyms - Latin and Polish. Internationally used names are given first place among the synonyms. For instance:

- | | |
|---------------------------|-------------------------------------------|
| a. Official Latin title : | Calcium Chloratum, |
| Synonym | : Calcii Chloridum. |
| b. Official title | : Calcaria Chlorata, |
| Synonyms | : Calcium Hypochlorosum, Calx Chlorinata. |

The proprietary names for commonly used drugs are followed by "(n.z.)" i.e. name restricted.

e.g. Acidum Acetylosalicylicum - Rhodine (n.z.), Aspirin (n.z.).

The monographs on chemical substances include the title, synonyms, mol. wt., empirical and structural formulae, limit tests for purity, physical and chemical properties, identity tests, assay, and special remarks regarding stability, storage, etc., and whether the drug belongs to the Venena, Separanda or Anaesthetica.

A monograph in the case of a vegetable drug such as Digitalis consists of the title, synonyms, the part used, the scientific name of the plant, a very detailed macroscopic and microscopic description, features on the basis of which we can differentiate it from adulterants, and a macro- and microscopic description of the powder.

In the case of the P.I. drugs the standards of assay are also given.

In the case of such drugs as the active principles obtained from the vegetable drugs like Atropine, Cocaine, etc. nothing is written about the source from which they are obtained. Very good and detailed descriptions are, however, given as in the case of other chemical substances.

In the monographs on preparations of the vegetable drugs such as oils, spirits, or tinctures the scientific name of the plant drug is also given.

In the P.P. there are many drugs which are not official in the B.P. or U.S.P. such as Rape Seed Oil, Veratrum rhizome, Pilulae Ferri Jodati, etc. Some drugs are found under completely different names, e.g. Cod Liver Oil is Oleum Jecoris aselli, Cold Cream is Unguentum leniens or Ung. emolliens. There are also some classes of preparations which are not found in the B.P. like Vasolimenta, Species. Many of the drugs official in the B.P. or U.S.P. are not included in the P.P. such as: Hamamelis, alkaloids of Ergot, glucosides of Digitalis, the sulpha drugs, vitamins, antibiotics and other newer drugs. The doses are given only in grams.

4. The fourth part includes the reagents used in the tests and analyses mentioned in the P.P. as well as procedures for the preparation of normal solutions.
5. The fifth part gives some valuable tables on atomic weights, alcoholmetry, specific gravity of liquids, the specific gravity of some acids and bases in relation to their concentration, the number of drops of different liquids per 1 cc. and the weight of one drop of each, and a table of the average and maximum adult doses of some 120 drugs.

There are no tables for the equivalents of weights and measures because only the centigrade and metric systems are used in Poland.

From the foregoing we can see that the Polish Pharmacopoeia differs in many respects from the B.P. and the U.S.P. but it resembles more the continental pharmacopoeias such as those of Germany, Austria and others. One should remember that for a long time before the first world war, Poland was under the rule of its neighbours and had to use their books, and naturally when an independent Polish Pharmacopoeia had to be prepared, it was based on the pharmacopoeias already known to the pharmacists of Poland.

For us Polish students studying British, American and French pharmacopoeias, it is very important to get acquainted with our own pharmacopoeia so as to be able to work in our country. I am happy to have had a chance to make this review of the P.P. so that other students may have the idea as to how some European pharmacopoeias are arranged.

Julia Fedorowicz, Phar.IV

PICTURES

Faculty and Staff

Pharmacy IV

Pharmacy IV (Contd.)

Pharmacy III

Pharmacy II

Pharmacy I

Pharmacy I (Contd.)

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Najib Jamal



Abid Nafia

FOURTH YEAR PHARMACY



Shu' Zikha



Haigazoun Kalaidjian



Lutmila Kregiel



Tawik Farah



Antoine Mas'ad



Muhammad Rin



Nizar Jardanah



Maria Korabinska



Husayn Mustafa



Mihiyiddia Mirjan

FOURTH YEAR PHARMACY



Yahya Fakhri



Tawik Zard



Maria Michajlow



Torkom Kalbian



Hanna Araj



Wasfi Awn



Jamil Suruji

Nabih Atiyyah

Adib Jidawn

Amin as-Sus



Zaki Abu-Ghazalah

Bejj Nshandian

Daud Farsun

Abdur-Rahman Kadri

THIRD YEAR PHARMACY



Hani Kawar

Abdul-Ghani Anabtawi

Helene Perucka

George Tarazi



Barkev Mugrditshian

Adib Bashshur

Uthman Kanafani

Mundhir Shabib



Bedros Alahaydian



Fahd Farraj



Nadim Khalluf



Joseph Abadi



Majid Yarid



Maria Widacka



Janina Herman



Farid Kusus

SECOND YEAR PHARMACY



Fand Zara



Sarkis Kevorkian



Anna Bem



Hagop Mekhtchian



Rauf Selhül



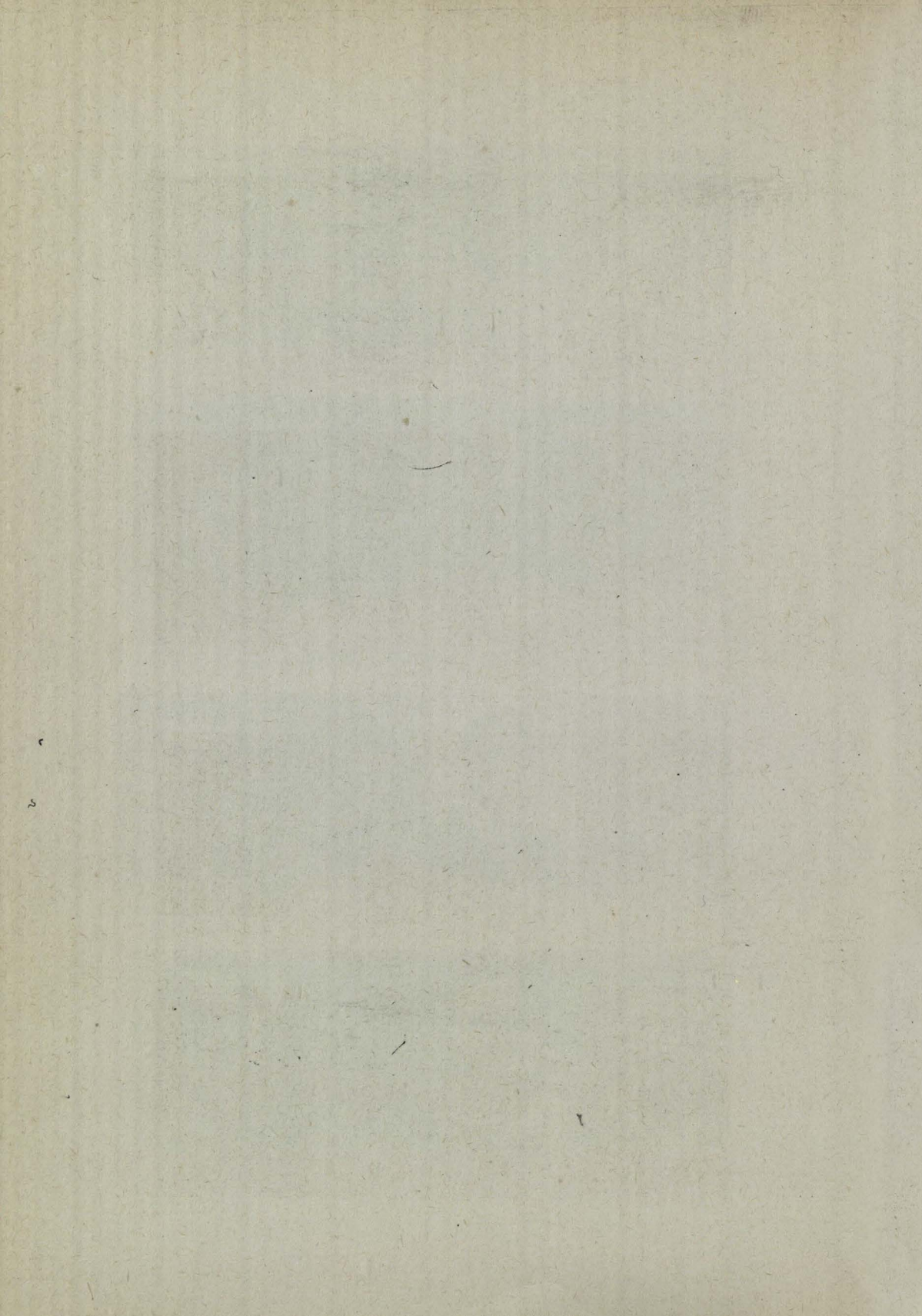
Partia Partikian



Yusuf Sanossian



Solak Tutelian





Amin Abdallah



Maruk Kemellan



Ara Israbian



Jerry Zerounian



Auis Wabbah



Wasi al-Khazin

FIRST YEAR PHARMACY



Victor Hitti



Muhammad al-Kurdi



Badi Hatshun



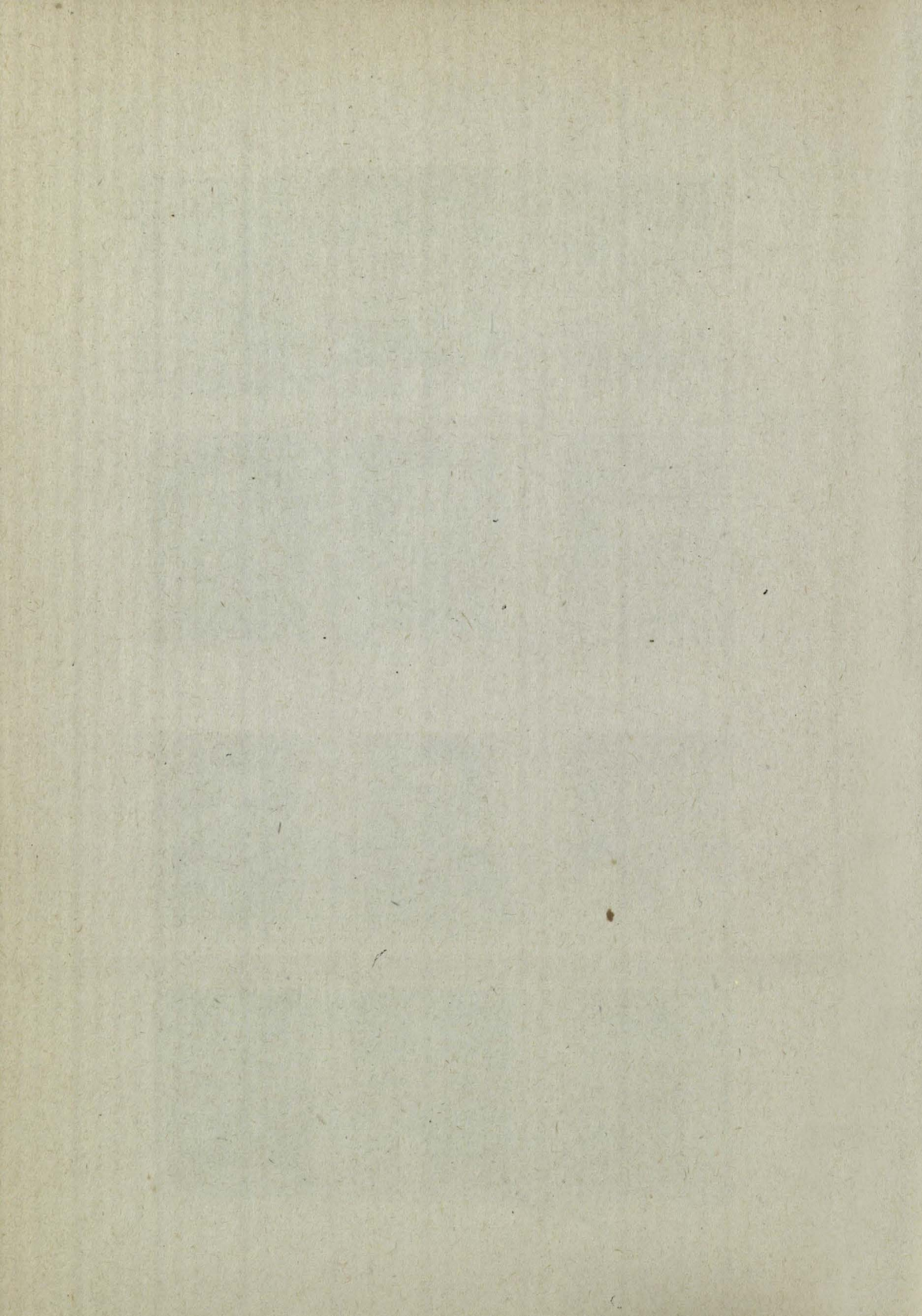
Hovhannes Merdjanian



Kasim Sad-ud-Din



George Dayton





Elie Nuwaysir



Umayyah Subra



Albert Krikorian



Milad Milad



Musa Awad



Nuha Baddurah



Hamdi Dürüst

FIRST YEAR PHARMACY



Sami Naman



Danuta Sayah



Hagop Yazjian



Thabit Dajani



Abdul-Al Awad



Zuhayr Kanan



Staff and Students

SEMINARS OF 1947 - 1948

This year the seminars presented by the members of the IVth Year Class have been well attended, adequately illustrated with charts, mimeographed tables or blackboard tabulations, and presented, in most cases, without reading or reference to notes. The class as a whole is to be congratulated on their good quality.

As many Alumni will be interested in keeping up with the modern developments in the field of Pharmacy, it has been thought desirable to give a brief summary of any such points which were brought out in the various seminars:

Oct. 25: REVIEW OF THE U.S.P.XIII by Julia Fedorowicz

The important thing to be learned from this seminar is to remember that the Official Titles of the monographs have been changed from Latin to English, which determines the alphabetical arrangement. Each drug is followed by monographs on its preparations, minor modifications having been made in the titles to fit them into their alphabetical place. Thus all the Digitalis preparations are placed together, e.g. Digitalis, Digitalis Tablets, Digitalis Tincture, etc. Thus there no longer exists in the U.S.P. the grouping of drugs into the Pharmaceutical Classes of Tinctures, Syrups, Waters, etc. This change to a therapeutic grouping has been made for the convenience of the physician in the hope of getting him to use the pharmacopoeia more often. The pharmacist can get used to the new arrangement if he will only take the trouble to study it thoroughly.

It is interesting to note that the trend of medical opinion in the U.S. caused the deletion, among the 112 items deleted in this new revision, of Bismuth Subnitrate (retaining the Subcarbonate), Carbon Tetrachloride (too toxic as vermifuge), Ergot and its Fluid-extract (retaining the alkaloids Ergonovine and Ergotamine as salts and preparations), Mercuric Chloride, - Salicylate, and-Succinimide, Salol, Strophanthin, Terpin Hydrate, Picric Acid, the whole class of Infusions and Decoctions, many Oils, Spirits and other items. The strength of Iodine Tincture has been reduced from 7% (w/v) to 2% (w/v).

Progress in the medical and pharmaceutical fields can be measured, in part at least, by a glance at some of the 95 new admissions to the Pharmacopoeia. Penicillin, of course, is included in its many pharmaceutical forms. There are 18 monographs on Sulfa Drugs. Four new Hormones and three crystalline Glycosides of Digitalis have been added. An official Benzyl Benzoate Lotion for the treatment of scabies consists of:

Benzyl Benzoate	250 cc.
Triethanolamine	5 Gm.
Oleic Acid	20 Gm.
Water	750 cc.
To make about	1000 cc.

Petrolatum and Rose Water Ointment will have a hard struggle to hold their places as the most used Ointment Bases when the new Ointment Bases of the U.S.P.* become better known. Both these ointment bases were developed as superior bases for the incorpora-

* HYDROPHILIC OINTMENT and HYDROPHILIC PETROLATUM

tion of various drugs, the former being a "Washable Ointment Base" easily removed from the skin with water, while the latter will permit the incorporation of as high as 500% water. Both bases allow better penetration of the incorporated drug and are therefore better vehicles for dermatologic therapy from the therapeutic standpoint. 11 pgs. 5 refs.

Nov. 1: HISTORY and STATUS of ERGOT ALKALOIDS by Ludmilla Kregiel

This very difficult subject was masterfully handled from the historical, chemical, pharmacological and pharmaceutical standpoint. It behooves all pharmacists to remember that the U.S.P. "Ergonovine" is the same as the English "Ergometrine" and the continental "Ergobasine". It is the most potent oxytocic constituent of Ergot, is water soluble, and is not always found in crude Ergot and is therefore not found in all Fluidextracts of Ergot. Of the other important alkaloids in Ergot, both of which are water insoluble, Ergotamine and Ergotoxine have practically the same pharmacological action, but the latter is nearly twice as toxic as the former. Of all Ergot preparations the U.S.P. retains only Ergonovine (as Maleate, Injection, and Tablets) and Ergotamine (as Tartrate and Tablets).

11 pgs., 10 refs.

Nov. 8: HOMEOPATHY and HOMEOPATHIC PHARMACY by Muhammed Rifi

This "system of medicine which assumes that such agents cure disease as in health produce similar symptoms" was interestingly treated. Not only was a thorough background given, but also a sympathetic understanding was developed from the report of an interview with a bona fide Homeopath of Beirut.

Pharmacists filling homeopathic prescriptions do not make their own preparations, but obtain them from a supplier of this kind of specialty, such as: Dispensaire Homeopathique, 99 Boulevard Auguste-Blanqui, Paris; A. Nelson & Co. Ltd., 73 Dake St., Grosvenor Square, London W.1; or Boericka & Tafel, Arch St., Philadelphia, Pa.

8 pgs., 5 refs.

Nov. 15: pH and ITS APPLICATIONS IN PHARMACY PREPARATIONS

by Yahya Fakhuri

Adrenaline Solutions are stable at pH 3 to 4.5, Tr. Digitalis below 5.4 (this may be attained by addition of Tartaric Acid); antiseptics were more potent at pH's below 4; the average pH of the skin was around 5.5 therefore creams and lotions should have approximately the same; collyria should have the same pH as lachrymal fluid which is 7.4 and nose drops should be around 6.75 for greatest efficacy. All these items were brought out in this seminar which also stressed the fact that pharmacists had many means available to test the pH of their products. (cf. your Remington, or the U.S.P). 16 pgs., 11 refs.

Nov. 22: THE Rh FACTOR

by Zuhair Annab

From the time of the first blood transfusion in 1667, when 9 ounces of blood from the carotid artery of a lamb were introduced into the vein of a young man, to the present day method of blood-typing and blood-banks is a long step. It was not until 1940 that the newest factor in human blood (the Rh factor) was noted. Its discovery explains certain types of transfusion reactions and fatal accidents. 6 pgs., 17 refs.

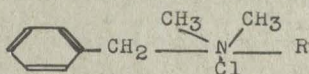
The preservatives: alcohol, glycerin, sugars, sulfur dioxide, sodium chloride, hypophosphorous acid, acetic acid, benzoic acid, salicylic acid, parahydroxy-benzoic acid esters, zinc chloride, benzoin, bacteriostatics, phenol, cresol, creosote, chlorcresol, phenylmercuric nitrate, chloroform, chlorbutanol, and volatile oils are taken up in detail. Much stress was laid on the most effective, least toxic new preservatives of the U.S.P., i.e. - Methyl Paraben (Methyl ester of parahydroxybenzoic acid) which is best for mold prevention, and Propyl Paraben (Propyl ester of parahydroxybenzoic acid) which is best against yeasts. A mixture of 65 parts Methylben (as the former is commonly called) and 35 parts Propylben is given as the most useful in the following concentrations: 0.1% for Aqueous Solutions, Confections, Extracts, Collyria, Injections, Mixtures, Mucilages, Syrups and Tooth Pastes; 0.15% for Decoctions, Infusions and Emulsions; 0.2 - 0.3% for Fats and Oils and 0.4% for Mouth Washes. It is best used in 10% solution of the mixed esters in alcohol.

45 pgs., 2 pg. mimeo. supplement, 33 refs.

Dec. 6: ZEPHIRAN and RELATED ANTISEPTICS

by Ursula Zalot

In the same year (1935) that Gerhard Domagk made known the effectiveness of Prontosil (the first Sulfa Drug) in combatting hemolytic streptococci, he also published an article calling attention to a group of antiseptics which combine detergent properties with antibacterial effect (having Phenol Coefficients of from 100 to 300). Chemically these belong to the class of Quaternary Ammonium Compounds in which the hydrogen atoms of the ammonium ion are replaced by various organic radicals. They are called "Cationic Detergents". It should be remembered that they are incompatible with soap which is an "anionic detergent". The one official in the U.S.P. is:

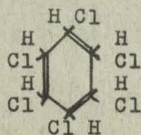


Benzalkonium Chloride, known in commerce as "Zephiran Chloride", where (R) is a mixture of the fatty acids of coconut oil.

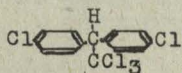
If (R) is p-(2-methyl, 4, 4-dimethylpentano-2)(phenoxy-ethoxy-ethyl), then the product is "Phemerol Chloride". Cetyl trimethylammonium bromide is "Cetavlon", whereas Cetyl pyridinium chloride is "Ceepryn". 10 pgs., 3 charts, 10 refs.

Dec. 13: NEWER INSECTICIDES and RODENTICIDES

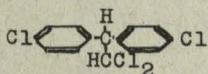
by Hanna Araj



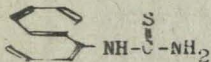
GAMMEXANE (γ -isomer of $C_6H_6Cl_6$) or "666" is a stable crystalline solid, soluble in organic solvents, acting as a stomach, contact, or fumigant insecticide and larvicide. It is the "British Competitor" for D.D.T.



D.D.T. (Dichlorodiphenyltrichloroethane).



T.D.E. (Ttetrachlorodiphenylethane) is a new insecticide very similar to the well-known D.D.T.



Antu (Alphanaphthyl thiourea) is a valuable rodenticide, lethal to rats in 10 mg/kg. doses. Rats display no shyness in accepting baits containing 2-3% of the material.

Sodium Fluoroacetate and Zinc Phosphide were also discussed.
15 pgs., 19 refs.

--- TAGGED MOLECULES (ISOTOPES of CARBON) by Yechezkiel Dorfman

The preparation of isotopes and the uses of radioactive tracer elements in physiological, biochemical, and pharmacological studies were treated in this seminar which was not delivered due to the Palestine Partition troubles. 26 pgs., 25 refs.

Jan. 17: PRESCRIPTION PRICING by Tawfik Farah

That professional service is worthy of a professional fee was the theme of this seminar that reviewed 14 different methods for fixing the fee for prescriptions. 7 pgs., 4 tables.

The following methods of pricing prescriptions (compiled by Mr. Shor '43) may be of interest to the alumni:

1. $M \times 5$ (This is too high for expensive ingredients)
2. $N + C$
3. $2M + C$ (This is like (2) but where N equals $M \times 2$)
4. $2M + L$ (Values of L vary from one to three dollars per hour)
5. $2(M + L + P)$ or $M + L + P + 70\% + 20\%$ (Merck's Method)
6. $N + C + P$ (Tel-Aviv and Haifa Method)
7. $2M + P + 3L + 12\%$ (or 1/8 of total for overhead expenses)
8. $1(M + P) + C$ Where C may be according to time and value
 $1\frac{1}{2}(M + P) + C$ C may be according to kind and amount
 $2(M + P) + C$ C may be according to kind and dose
9. $2M + P + 1\frac{1}{2}L$ (A very useful method of Evans)
10. $N + C + S + X$ (Seltzer's modified method)
11. $N + H + O + S + P + X$ (Beirut Method)
12. $N + P + C + T.T.$ (Deutsche Arznetaxe Method)
13. $N + E + C + A + B$

Explanation:

- M - Net cost of ingredients
- N - Price of ingredient (i.e. M + profit)
- C - Compounding Charge (arbitrary or customary)
- L - Compounding Charge (calculated at one dollar per hour)
- P - Container, packing, wrapping material, cork, label, etc.
- S - Service charge (for divided doses)
- X - Special additional charges (e.g. for narcotics)
- H - "Honorary Charge" (In Beirut it is 10 ps. Leb. per each ingredient)
- O - Operational charge (for use of mortar, percolator, heat, etc.)
- T.T - A fixed fraction of the turn-over tax
- E - Overhead expenses fraction
- A - Legal liability charge
- B - "Psychic" charge.

The term "antibiotic" is here used to designate microbicidal agents produced by living bacteria, yeasts, molds and other plants. Although seventeen antibiotics are mentioned, the seminar was devoted to a complete survey of the history, production, properties, pharmacology, therapeutics and pharmaceutical presentation of Streptomycin. 40 pgs., 6 tables, 4 refs.

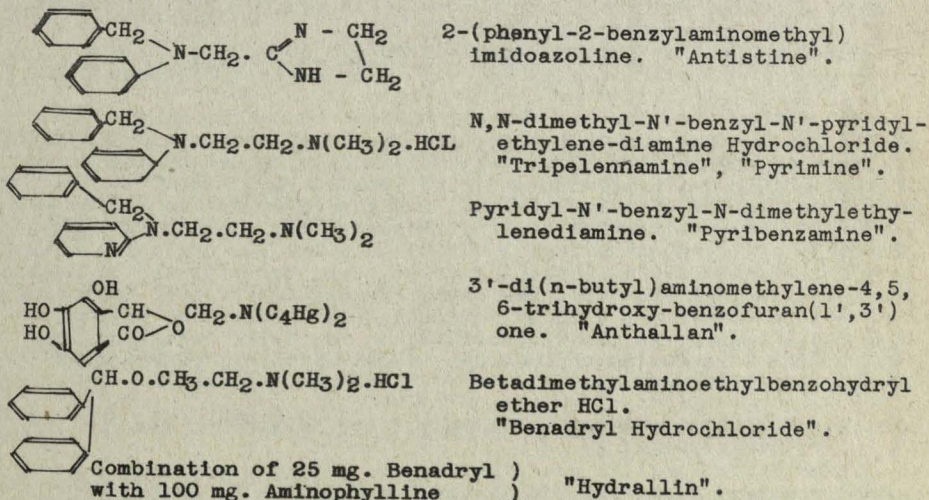
Feb. 23: PLANT HORMONES and RELATED COMPOUNDS by Torkom Kalbian

From a discussion of the growth of living organisms, through the studies on tropisms by which botanists first became acquainted with growth substances, to the modern discoveries of the plant hormones - Auxin a and b, and Hetero-auxin (Beta-indolyl acetic acid) - was a fascinating story. The sources, properties, manufacture, formation in different parts of the plant, transport, structure, activity, the avena unit, inactivation, and significance of the natural hormones was included. The application of synthetic hormone-like products and other substances to prevent the dropping of fruit, to produce fruits without pollination, to inhibit bud formation when such is not desirable (expected frost or fruits in storage) or to ripen fruit quickly when desired all brought out the immense value of such discoveries. 30 pgs., 13 refs.

Mar. 1: ANTI-HISTAMINIC DRUGS

by Maria Michajlow

This included a history of allergy, explanations of the causes of allergy, a classification of allergic symptoms, a discussion of the drugs used previously and then a thorough discussion of the anti-histaminic drugs. The pharmacist should know that allergic diseases (serum sickness, asthma, coryza of perennial and seasonal type, urticaria, edema, etc.) are on the increase due to wider spread sensitization of humans which, according to the newest and most accepted theory, allows the production of an histamine compound from the natural histidine in the body causing the reactions of anaphylaxis. The most important of the antihistaminic drugs are given in the following table:



23 pgs., 1 mimeo. table, 24 refs.

Mar.9: NEWER FORMS of PENICILLIN

by Ahid Naffa

This seminar brought to the attention of the audience all the modern pharmaceutical presentation forms for penicillin, i.e.: Penicillin Sodium, - Calcium, - Crystalline G, - Suppositories, - Nasal Drops, - Dental Cones, - Injection in Oil and Wax, - Tablets, - Troches, and Buffered Penicillin Preparations of all types. 12 pgs., 20 refs.

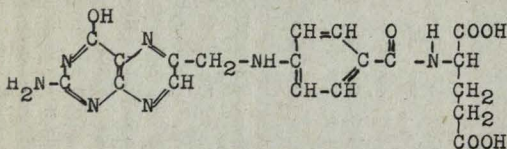
Mar.15: NEWER OINTMENT BASES

by Muhyiddin Mirjan

Following an historical introduction on ointments the development of Hydrophilic Ointment and Hydrophilic Petrolatum of the U.S.P. was recounted. Then a full discussion of the properties of the following, together with what each contributes to an ointment formula, was given: Monohydroxy aliphatic alcohols (cetyl, stearyl, lauryl, myristyl), polyhydroxy aliphatic alcohols (ethylene and polyethylene glycols- Carbowax), cyclic alcohols (normal, iso-, and oxycholesterol and cholesterol acetate), alcohol ethers (ethylen glycol ethyl ethers - Cellosolves, Carbitols, etc.) alcohol esters (Sorbitol mono- and dilaurate- the Spans, Tweens, Arlacel, etc.) silicon compounds (Elkonite, Bentonite, etc.) 20 pgs., 2 refs.

Apr.5 FOLIC ACID

by Wasfi Awn



The discovery, synthesis, properties, and uses of this most recent member of the Vitamin B complex was presented in this seminar. Folic Acid has a wide range of applica-

tion in anemia therapy by either oral or parenteral administration and is especially recommended by those patients exhibiting sensitivity to liver extract. Because anemias are generally considered to be dietary deficiencies, it is natural to combine folic acid with other members of the B Complex in vitamin preparations. 15 pgs., 8 ref.

Apr. 12: SOCIALIZED MEDICINE in ENGLAND and AMERICA

by Maria Korabinska

Although poor relief laws were in effect since the time of Queen Elizabeth, we find that interest of a nation in the physical health of its citizens is a comparatively modern development dating from the early 19th Century, with the first public health official having been appointed in 1847 in Liverpool and the first Public Health Act passed in 1848, while the act of 1875 placed the administration in the hands of local authorities. Since then the all inclusive health services of the Beveridge Plan as enlarged by the Minister of Health Mr. Bevan and, in the U.S., the Wagner-Murray Act of 1946 proposing to create a compulsory Unified National Social Insurance System, both point clearly to the "Handwriting on the Wall" regarding the future form of medicine and pharmacy about which all pharmacists should keep informed. 9 pgs., 10 refs.

Apr.19: FLAVORING AGENTS in PHARMACY

by Husayn Mustafa

Flavor influences the acceptability of nearly everything that passes the lips - whatever is pleasant is sure to be used more willingly and freely. Flavors were classified as natural (Volatile Oils, Galenical Preparations, and Flavoring Extracts) and artificial (Synthetics). Each class was thoroughly treated. A summary showed

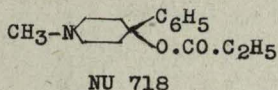
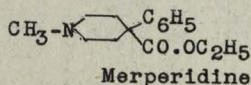
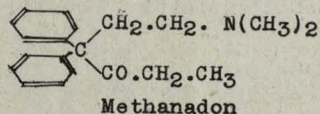
that bitter taste is masked by Tr.Cardamom Co., Elix.Arom., Syr. Glycyrrh. and Aq.Anisi but that Syr.Cacao N.F.V., Syr.Raspberry N.F.VI., and Arom.Syr.Eriodictyon were more efficient in masking the bitter taste of alkaloids and digitalis; acid taste by Syr. Acac., Syr.Aurant., Syr.Limon and Tr.Cardamom; alkaline or salty taste by Carbonated Water and Aromatic Waters but that Syr.Cinnamom and Syr.Aurant. were best for NH_4Cl and NaBr and a mixture of the two for Quinine Salts; and oily tastes by oils and spirits of Peppermint, Lemon, Orange and Wintergreen.

A discussion by the class and one attending alumnus brought out the facts that Syr. Glycyrrh. and the oils of Anise and Peppermint were the flavors of choice for most of the preparations of the Near East, while Wintergreen was distinctly taboo. 15 pgs. 8 refs.

May 3: COSMETICS and the PHARMACIST by Najib Jamal

In order to accommodate the large group attending this popular seminar, it was held in the Medical Science lecture room. The speaker covered the complete field of cosmetics by giving the basic formulae and characteristics of each class, while at the same time elucidating the distinctive properties of each ingredient in the typical formula for that class. Each type was illustrated by both a commercial packaged product and a sample prepared in the laboratory to resemble it. Notes on what types of preparations the pharmacist could easily prepare and which to avoid, unless he became a specialist, were pointed out. Every pharmacist should remember the ratio of borax to beeswax in Cold Cream as 1:16. In vanishing creams that contain 20% stearic acid only 3/4 of it should be saponified; as we increase the molecular weight of the alkali used (NH_4 , Na, K, and Triethanolamine) the softer the cream produced. Amidol Hair Dyes seem to be the best, etc. 95 pgs. 18 refs.

May 10: SYNTHETIC OPIATES by Nizar Jardanah



Nearly every physician needs substitutes for morphine to relieve the pain of certain conditions of long duration. Recent advances in the field are making a number of synthetic substitutes available, some of which are still on clinical trial, others having slight habit-forming properties in themselves, while still others seem to offer all the advantages of opium and morphine without this effect. Those in the forefront with which all pharmacists should become thoroughly acquainted are listed here.

Metopone is a Methyl Dilaudid
Methanadon N.N.R. is Amidone, Dolophine, Adanon, Methadon or Miadone
Merperidine N.N.R. is Demerol or Isonipergaine
NU 718 is (1-methyl 4-phenyl 4-propionoxypiperidine).

23 pgs. 20 refs.

May 17: THE CHEMISTRY and TECHNOLOGY of ALCOHOL MANUFACTURE
by Tawfik Zard

Raw materials; processes of manufacture from saccharine, starchy, cellulose, and synthetic materials; distillation and refining were all discussed. The facts and theories concerning the mechanism and chemistry of alcoholic fermentation were dwelt upon in detail.

20 pgs. 8 refs.

May 24: BLOOD FRACTIONS

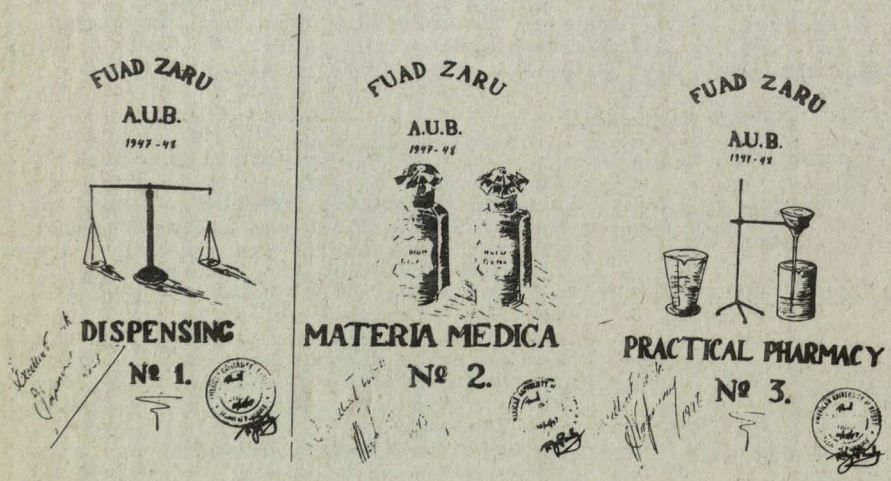
by Shu' Zilka

Blood is composed of cells and plasma. Plasma is the liquid portion in which the cells are suspended. The cells include red cells (erythrocytes), white cells (leucocytes), and the platelets (thrombocytes). Plasma is made up of 8% solids containing the proteins albumin, globulin, and fibrinogen to the extent of about 7%. The plasma is called serum when it is free of fibrinogen. The inorganic and organic constituents of the plasma were listed and discussed. The various pharmaceutical preparations which were being made from human and animal blood were presented. 20 pgs. 9 refs.

May 31: PRESCRIPTION SURVEY OF JAFFA, by Munir Bastami & Antoine Mas'ad

As this seminar may be of interest to many, a tabulated summary by the authors is included as a separate article in this number of The Apothecary. 12 pgs. 5000 prescriptions.

R.J.P.



ZARU receives PRIZE

FUAD ZARU, Pharm.II, was awarded a valuable book as a prize for the very outstanding notebooks which he kept during his year of practice. Their neatness, arrangement, and originality of illustration won for him this distinction.

BACTERIOPHAGE

The phenomenon of bacteriophagy was discovered during the investigations on a disease, bacterial in origin, affecting locusts in 1909. D'Herelle noticed that many of the culture-tubes used for isolating or transplanting the cultures showed colonies in the midst of which there was no growth. This strange phenomenon of cultural irregularity aroused the curiosity of D'Herelle and other scientists who started investigating it. D'Herelle, while working on a bacillary dysentery case in 1916, found out that when the stools of the patient were cultured and subsequently filtered through a Chamberland candle filter and some of the filtrate added to a culture showing marked turbidity, the culture after 10 hrs. incubation was clear. Then he took a drop of the dissolved culture after 15 hrs. and added it to a fresh culture of Shiga bacilli. The culture was clear and the bacilli dissolved. This lysis of bacteria was believed to be due to a virus pathogenic to the bacterium. The phenomenon was called bacteriophagy and the dissolving principle a bacteriophage.

The bacteriophage is widely distributed in nature, normally occurring in the intestinal contents. It possesses the property of dissolving susceptible bacteria. The complete dissolution of the bacterial cell results in the multiplication of the phage. It is established now that the bacteriophage is a protein of high molecular weight formed from another protein synthesized during a phase of accelerated metabolic activity within the bacterium. The process by which the inactive precursor is transformed into the active phage is catalysed by phage.

Phage production proceeds under environment favorable for the normal growth of the bacteria. It was demonstrated by scientists working for the American Council on Pharmacy and Chemistry that bacteriophagy in vivo is much less effective than in vitro. The available data on the use of phage in various bacterial diseases is insufficient to consider phage therapy as a method of choice. However there is evidence that a properly prepared lysate can serve satisfactorily as:

1. Vaccine for the treatment of certain diseases, e.g. some types of staphylococcal lesions.
2. A measure to aid the general resistance of an infected area when applied topically.
3. An agent to induce a nonspecific protein shock.

Modern chemotherapeutic measures in the treatment of diseases for which phage is recommended have proved to be superior to phage action. One of the disadvantages in the use of the bacteriophage in therapy is that sometimes many reactions, either strong or mild, have followed the injection or application of the phage. Experimental work on animals has shown that lysates may contain enough soluble toxins to be actually dangerous. The accumulated clinical data on bacteriophage is in some instances suggestive and encourages the continuation of further studies in the field of bacteriophage.

In the Hospital Laboratory of our University some research is being done on bacteriophage. Mr. G. Garabedian is studying experimentally the morphological variations that bacteria, resistant to phage action, undergo. This type of research is encouraged by the Council on Pharmacy and Chemistry of the American Medical Association.

Zuhayr Annab, Phar.IV

"A LIBRARY FOR THE PHARMACIST"

The continuous introduction of new drugs and preparations into the pharmaceutical field, and the large number of medicines used, should provoke us, who are still in college, and those who have been out of college for quite a while, to build for our future or present pharmacies a well balanced library.

In this cosmopolitan part of the world, one should be acquainted at least with the pharmacopoeias of Britain, the U.S.A., and France.

A valuable book of great interest to the pharmacist, unknown by most of us, is the 24th Edition of the United States Dispensatory. This edition includes pharmaceutical and medical information on the drugs described in the U.S.P. XIII, N.F. VIII, the latest British Pharmacopoeia with its seven addenda, and also on the new non-official drugs in medicinal use. This book is of encyclopedic nature.

A primary list, as described below, represents the most useful and progressive books in the field of pharmacy. A supplementary list will be of different value for different pharmacists. Its value depends upon the type of practice and the line of work one is most interested in.

Primary List

1. United States Dispensatory, 24th Ed., (1947) \$ 16.50
Lippincott Co., 227-231 S. 6th Str., Philadelphia, Pa.
2. Remington Practice of Pharmacy, Mack Publishing Co, 20th &
Northampton Strs., Easton, Penna. \$ 16.00
3. The British Pharmacopoeia, (1932) with seven supplements
Constable & Co, Leicester Square, London, (W.C.2) B.P.-\$6.50
Addenda-35 s.
A new edition will probably be published in 1948.
4. Codex Medicamentarius Gallicus, Pharmacopée Francaise, 6th ed.
Masson, Paris.
5. The British Pharmaceutical Codex, (1934) with 7 supplements
Pharmaceutical Press, 17 Bloomsbury Sq., London W.C.1,
B.P.C. 34, alone 40/-, addenda 21/-, both together 50/-.
6. The Extra Pharmacopoeia, Vol. I and II, 22nd ed. (1941 & 1943)
Martindale - The Pharmaceutical Press, as above. 27s.6d. ea.
7. Pharmaceutical Formulas, Vol. I & II, (1944 & 1946)
Chemist & Druggist - 28 Essex Str., London W.C.2, 21/- each.

Supplementary List

1. Pharmacological Basis of Therapeutics (1941)
Goodman & Gilman - Macmillan Co, New York \$ 12.50
2. Merck Index, 5th Ed. (1940)
Merck & Co, Rahway, N.J., U.S.A. \$ 3.00
3. Dorvault, L'officine ou Répertoire Général de Pharmacie
Pratique, -Vigots Frères, Paris LL 36.00
4. Chemistry of Organic Medicinal Products, 2nd. Ed. (1943).
Jenkins & Hartung, Wiley & Sons, New York \$ 6.50.
5. Incompatibilities in Prescriptions, 6th Ed. (1945)
Ruddiman & Nichols, - Wiley & Sons, as above \$ 2.75
6. Drug Store Accounting (1943)
Heckert & Dickerson, -McGraw-Hill, New York \$ 4.00
7. Bacteriology and Allied Subjects (1947)
Gershenfeld. Mack Publishing Co, Easton, Pa. \$ 6.00.

All these books can be obtained through book-dealers. The Lebanon Government allows up to \$ 10.00 a month in money order at legal rate of exchange in case one wishes to send the order oneself directly to the publisher. The Tower Book Shop in Beirut will take orders for books or for journals at a rate slightly higher than the official rate of exchange.

Journals

"It is only from its scientific journals, not from its textbooks, that one can follow the true development of a science".

Sudhoff

1. Journal of the American Pharmaceutical Association, Practical Edition. American Pharmaceutical Association, 2215 Constitution Ave., Washington, D.C. Subscription rate \$ 4.00
2. American Professional Pharmacist, Romain Pierson Publishers, Inc., 67 Wall St., New York City 5, U.S.A. Subscription rate 8.00
3. Pharmacy International, McGraw-Hill International Corp., 330 West 42nd St., New York 18, U.S.A. Subscription rate 3.00
Agent in Lebanon: Mickey A. Saab, Saab Advertising Agency, P.O.B. 1295, Beirut
4. The Pharmaceutical Journal, Pharmaceutical Society of Great Britain, 33 Bedford Place, London, W.C.1. Subscription rate 42s.

A. Jidawn, Phar.III

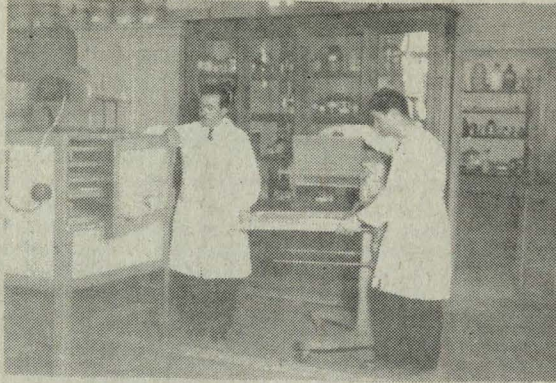
The Optimist

The optimist fell ten stories.
At each window bar
He shouted to his friends:
"All right so far."

A MAXIM Revised

Ladies, to this advice give heed
In controlling men;
If at first you don't succeed,
Why, cry, cry again.

Unknown



NEW EQUIPMENT FOR MANUFACTURING PHARMACY

Above is shown two pieces of new equipment obtained recently for better instruction in manufacturing pharmacy and for facilitating the work of the University Pharmacy in supplying the needs of the University Hospital and Out-Patient Clinics. At the left is a five tray-shelf, electrically heated and controlled, drying closet and at the right is an electric driven oscillating granulator. Other items newly arrived include a Baltimore ampul filling apparatus with automatic control, an ointment mill, an electrically driven pressure filter for large volumes of liquids, three Waring Blenders for pulp maceration or emulsion making, a constant temperature water bath, a flask-shaker and several heavy duty electric stirrers. Still to arrive are a pill coating pan and polishing pan, a large centrifuge with basket for draining crystals, and an ultra-violet lamp.

The funds for this equipment was earned by the school during the war on work done for the outside when, during the time the country was practically blockaded for over two years, the laboratories prepared over a half million injections of various sizes and kinds and compressed over a million tablets on an overtime, cost-plus basis.

AR-RAZI (RHazes) 865-925 A.D.

Abu Bakr Muhammad ibn Zakariyyah lived as a care-free youth in Rey near Tehran, Iran; in the golden era of peace and prosperity of the Arab empire. He was a poet who wrote his songs, put them into music and played them on his lute. He also found great pleasure in visiting the alchemists of the city hospital of Rey and talking with them. He became deeply interested in what they told him and he began reading books on astrology, alchemy and medicine, and, since he did not find enough in Rey to satisfy his hunger for knowledge, he left his lute and travelled widely. Soon he became known as Ar-Razi in Baghdad, the city of peace and the capital of culture of the Arabian Empire. Abu Bakr Ar-Razi changed into a serious and a deep thinker and became a true scholar for he began to acquire knowledge of every kind. He travelled to Egypt and met its learned men and continued on to Spain and studied in its great universities which brought the culture of the Arabs to Europe. Not being able to travel further, he returned to Baghdad.

There in Baghdad, at the age of forty, he began to practice medicine and, besides, wrote, translated and abstracted medical knowledge. His books proved to the learned in medicine that he was an authority on the old and up-to-date on the new in medicine. Students came to him to satisfy their thirst for knowledge because he was the man that had combined the essence of the Western and Eastern cultures.

His real practice of medicine began when he was asked to choose a site on which to build a hospital in Baghdad. Strange enough, and with the same logic that made Columbus go on his voyage, Ar-Razi hung pieces of meat in different places of the city and the place where the meat was most resistant to deterioration and putrefaction was chosen as the site for the construction of the hospital. Ar-Razi was the intuition of the human race for he felt that the agents of putrefaction were the same agents that caused disease, while Pasteur was the eyes of the human race and saw with his own eyes the agents of putrefaction.

Ar-Razi was an expert in describing clinical symptoms and, among the several monographs written by him, we find exact descriptions of measles and small-pox which were translated and copied several times over until lastly they were translated by a pioneer pathology professor in this University, Dr. Van Dyck, from a copy preserved in the Dukes' Library in Venice.

His teachings on therapy were characterized by "food before medicine", and "try your best to use one simple drug and avoid complexity in treatment" and "treatment should begin when the disease starts". He taught his students for the first time in history to put a clean string in an open pus wound to let the pus flow out. His many books will always remind the human race that Ar-Razi was one of the greatest medical men of the world. Of his general works on medicine, apart from his numerous monographs, he composed some half dozen, to wit: the Jami, the Mansuri, the Muluki, and the Hawi. The translation of the last is rare to find and is not complete because of his death.

In his last years Ar-Razi became blind and unhappy. For as he said, he was a "Polyscientist" who devoted himself not to one

science, but to astrology, medicine and chemistry and at the same composed poetry. He abstracted the knowledge on Alchemy at that time and put it in a book, which he carried to the Commander of Khurassan and Karman districts in his own country. He was awarded 1000 dinars, but, when the Commander had read the strange alchemy, he became eager to see the "Elixir of Life" and other imaginary substances over which the alchemists pondered and for which they looked on for years as a reality. The Commander called Ar-Razi and told him that he will give him whatever he wants of medicines and apparatus, etc. so as to prove that what he had written was true. Ar-Razi was happy for this opportunity and accepted the offer. But Alchemy was mostly based on philosophy and logic and not on experimentation. And as it was expected, he could not prove that all what was written was true. The Commander waited enough and one day he called Ar-Razi and told him: "we have rewarded you for collecting knowledge and now you have to be rewarded for trying to preserve lies and untrue facts, and this is going to be paid to you by beating your head with that alchemy book until the book is torn into pieces"; this order was fulfilled. This incident changed the character of Ar-Razi and he began to avoid people after being a lover of people, for his house was usually full of students and learned men. Still he left for us a treatise based on experimental chemistry: "Alums (or Vitriols), and other Salts", that was of value in building the science of experimental and modern chemistry.

When his sight began to fail, they brought for him a medicine-man to treat him. He asked him of how many layers the eye is composed, and when the medicine-man could not answer, he told him that he will not accept anyone to treat him who does not know what he is dealing with, and that he wishes to be blind in this world of ignorance and ingratitude.

From various manuscript sources by Abdel-Ghani Anabtawi, Phar. III.

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QUESTION WITHOUT ANSWER

A recent letter to the director read:- "About three weeks ago I sent you a letter on which I have not yet received an answer, maybe it was lost on the way! Could you please let me know whether it reached you, and what are the answers to the questions asked there,"

ANSWER WITHOUT QUESTION

Prof. Pauly to As-Sus (In commenting on an incorrect answer to the uses of acetone) - "If you can't distinguish between lip-stick and finger nail-polish you had better be careful on balmy dark nights"

DO YOU KNOW THAT ?

Dr. R. J. Pauly returned with his family from his year of furlough on the Marine Corp on Aug. 29, 1947. Prof. Amin Haddad and family sailed to New York on the same day and on the same ship.

Dr. Pauly spent a very busy and fruitful year in the United States. On his arrival there he visited a number of Schools of Pharmacy in order to see the type of equipment they were using in their manufacturing pharmacy courses. He also saw such equipment on a large scale by visiting many pharmaceutical manufacturing plants. During the year he was able to place orders for \$3000 worth of such equipment for our school. Last summer he was "visiting scientist" in the Pharmaceutical Division of the Sterling-Winthrop Research Laboratories at Rensselaer, N.Y. After three full months of first hand experience and participation in the research work of the laboratories, during which time he was able to attend the annual convention of the American Pharmaceutical Association at Pittsburgh, he met his family in N.Y. on their arrival from Beirut on Sept. 30 and rushed them to his home at Walla Walla, Wash. to take care of his mother who had become seriously ill. It is with great sorrow that we later heard the news of her death.

January 1st found Dr. Pauly 3000 miles away from his home taking up the teaching of Pharmaceutical Chemistry at the School of Pharmacy in the University of Georgia where he taught till June. Here he gained first hand experience with American student youth, their problems and the present condition of life of the student veterans. When asked how American students compare with Arab students, Dr. Pauly replied that American students study less and spend more time on extracurricular activities, but are just as capable of making good grades when interested in their work. The veterans, he said, were generally the most serious and better students.

Prof. A. Haddad has been studying this year at the Philadelphia College of Pharmacy and Science and expects to obtain his M.S. in Pharmacy in June. Prof. Haddad is planning to return to Beirut with his family in August. He has greatly enjoyed his stay in Philadelphia and his contacts with the authors of the pharmacy texts which are familiar to us. His wife and son have been staying with a sister in nearby Virginia most of the time. He extends his sincere best wishes to the graduating class and to all the other students of the school. He has just reported that Mr. E.E. Leullen of P.C.P. & S., who was Instructor of Pharmacy at the A.U.B. from 1933-36, has been appointed Professor of Pharmacy at Columbia University.

Prof. C. Abou Chaar will be leaving for the U.S.A. toward the end of June. He will spend a year in study at Massachusetts College of Pharmacy under Dr. Heber W. Youngken, Sr., the author of the well-known texts in pharmacognosy and botany. Prof. Abou Chaar expects to obtain the M.S. in Pharmacognosy by the following June. His family will not accompany him.

The following have joined the staff of the school:

Mr. Levon Karamanukian B.A., Ph.C. '48 who taught Quantitative Chemistry, Pharmacy II, and assisted in the laboratory of Pharmacy III and Pharmacognosy.

Mr. Jamil Barghash Ph.C. '43 joined the school at mid-year. His time is divided between the University Pharmacy and the laboratory work of Pharmaceutical Chemistry where he is assisting Dr. Pauly.

Mrs. S. Sivinsky joined the school in April as Secretary in place of Miss Najla Kanaan who left us for work with the Iraq Petroleum Company office in Beirut. Mrs. Sivinsky is prepared to do translations from Russian, French or German and is not finding it impossible to read student handwriting in typing their contribution to The Apothecary.

Miss Danuta Kazatel Ph.C. '47, joined the staff of the University Pharmacy last September.

Mr. Barkev Murgditchian, Pharm. III and Miss Anayis Tashdjian were married at the Anglo-American Church on March 20, 1948. Barkev took the opportunity of the short Easter vacation for the event. The church was crowded, with many classmates attending.

Mr. George Brussalian Ph.C. '45 has joined the University at mid-year and is teaching mathematics to the Freshman Class of the Arts and Sciences and also mathematics and geometry to the high school classes of the American Community School nearby.

Mr. Rashid Dajjani Ph.G. '38 entered upon graduate work in Bacteriology and Biochemistry on May 1. He hopes to continue for the full two years of Medical Technology work.

The School obtained recently a class room projector which projects material from books, charts, etc. onto a wall screen. It also has attachments for projecting 36 mm. film, lantern slides, and micro-slides.

The private library of the School is being enriched yearly by a large number of books. This year it has around 350 volumes in the offices of the various teachers of the School. These books are mostly of the text-book, reference-book, encyclopedia and official standards type and are in addition to the many pharmacy books in the Medical Library where the students have a regular course in Library Practice and where, it is said, the pharmacy students make more use of the facilities than the medics. The Medical Library has now reached the number of 200 current periodicals, 12 of which are pharmacy journals.

Beginning in October, the First Year of Pharmacy will have a new course added to their curriculum. It will be a course in English especially constructed to meet the needs of our School.

Drs. Pipkin and Pauly are working out the details for a graduate course which will lead to the Master of Science Degree in either Bacteriology or Medical Technology.

New Regulations for Pharmaceutical Latin. The 32 hours of formal pharmaceutical latin that were formerly required in the first year of pharmacy have been informalized and an equivalent is now required to be done during the year of practice. Students will be given a qualifying examination in this subject before entering the second year of pharmacy.

Louis Haydar, Ph.C. '47 now Chief Pharmacist with Wardle & Co, Dar Es Salaam, Tanganyika writes: "Around our farm, we have all sorts of wild game: lions, leopards, hyenas, bush-cats, and what

not. Las. year an older brother of mine had an accident when hunting at night just near our house. He was attacked by a lion; the African assistant tried saving him, but unfortunately his shot missed the lion and penetrated into my brother's leg. An operation was immediately performed, amputating his right leg. Thank God brother has an artificial leg on and feels well. I, myself, don't dare walking out after dark".

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FIRST YEAR GOSSIP

SPECIFIC GRAVITIES...

- Mr. V. What is a "lactometer"?
- I. A sensible instrument for measuring the average density of good milk, sir.

MID-YEAR PRACTICALS...

The following recipe was given:

Rx. - Castor Oil 8.-
Acacia q.s.
Tr.Vanilla 2.-
Water, q.s.

Sig.: Three teaspoonfuls, bed time.

Z.K., after having filled the prescription, was puzzled to find one red and one white label. Turning to his friend, he asked:

"Ya Habibi, is this to be taken internally or externally?"

S A L T S ...

- Mr. Vorperian -- Then, we have the Kissingen Salt...
- Zuheir Kan'an -- Did you say hissingén, Sir?
- Mr. V. -- No, KISSINGEN; spelled K-I-S-S... The way you know it. But I can't spend time on these, you should have looked it up beforehand.
- Z..K. -- Just a minute, Sir, because this is the most important thing, I mean ...

REPORT ON THE ACTIVITIES OF THE PHARMACEUTICAL SOCIETY

1947 - 1948

The first meeting of the Pharmaceutical Society was held on Nov. 7, '47, in the pharmacy building. Forty members attended. Mr. T. Kalbian, the Vice-president in the outgoing cabinet, called the meeting to order, then gave a report on the activities and the budget of the Society during the past year. The chair was next taken by Mr. Edward Vorperian who kindly consented to conduct the election of the new cabinet. The following were elected:

President	- Munir Bastami	- Pharm.IV
Vice-President	- Munzir Shabib	- " III
Secretary	- Hani Kawar	- " III
Treasurer	- Bedros Alahaydian	- " II
Cabinet Member	- (also member on the Student Council) Hanna Aradj, Pharm.IV	

Number of members: First Semester - 72, Second Semester - 45).

Every one was happy, and anxious to see and hear Dr. Pauly tell his experiences of his year of furlough; and so on Nov.20, 1947, he inaugurated the activities of the Society by graciously giving a talk on the various pharmacy schools which he visited in the U.S.A. and on the student life in these schools. A full house attended.

On Nov. 22, the Society held a dancing party at the home of Dr. and Mrs. Pauly. Thirty couples filled the house. No one will ever forget that night and the grand hospitality of Dr. & Mrs. Pauly. All of us were very grateful and thankful to them for the joy we had at their home that evening.

Sometime later, Dr. Henry Badeer, of the Physiology Department of the School of Medicine, addressed the Society on "The Role of the Hormones on Bodily Function". His presentation was lucid and very interesting.

Mr. Garabed Garabedian, of the Bacteriology Department, gave a most interesting talk on Cholera. He showed on a map the route taken by the great cholera pandemics which broke out during the last and present centuries, then went on to discuss the discovery of the causative agent, the source of infection, and finally told the very attentive audience how to control the spread of the disease and how to avoid contracting it.

In two other sessions of the Society, educational films - kindly lent to us by the United States Information Service - were shown. Subjects were varied. The films were instructive and entertaining at the same time.

The Society also organized some trips in which a large number of students took part:- one was a skiing trip to Laklout and a second to the Petroleum Refinery of the Iraq Petroleum Co. in Tripoli. We were glad that Dr. Pauly, Master Hans Pauly and Prof. Istfan accompanied us on this last trip.

Before I close, I cannot thank enough Prof. Fuad Istfan, our Faculty Advisor, for all his help to us throughout the year. My colleagues on the cabinet, whom I also wish to thank for their cooperation and willingness to serve, join with me in wishing all students a very pleasant summer, and to those who will graduate in June success and happiness in their chosen profession.



THE UNIVERSITY PHARMACY

The University Pharmacy has been as busy as ever supplying the needs of the University Hospital, the Out-Patient Clinic, the Student Infirmary and the University Departments and, at the same time, giving training to a number of "stagaires" who have been obtaining a part of their year of practice here.

The personnel, this year, besides the University Pharmacist and part-time of an Assistant Pharmacist -both Ph.C. graduates of this School - consists of Mr. John Adil, a technician of twelve years experience, entrusted with the orders for the Hospital Pavilions; Miss Danuta M. Kazatel, Ph.C. '47, clerk and bookkeeper; Mr. Hani Shaar, junior technician assigned to assist in the preparation of parenteral preparations; Suhayl Kulaylat and Ilyas Fayyad, our two faithful orderlies, one of whom prepares 800 liters of distilled water each week when not running errands and the other keeps the pharmacy clean and delivers baskets.

Of the fourteen students who availed themselves of the opportunity to practice in the Pharmacy, the following four will have completed a full nine-month period by June: Miss Zofia Mankowska and Miss Lidia Koszembar, both of whom obtained their Polish Matriculation after having left Poland; Mr. Sami Atallah, B.S., University of Chile; and Mr. Hamdi Dürüst, B.S., Robert College, Istanbul. Although the greater part of our work is that of a regular Hospital Pharmacy, there is sufficient general practice in filling prescriptions for the community and for the private patients of the hospital that full credit can be given for such practice. During the past year the number of prescriptions compounded or filled was over 4600, plus some 400 repetitions.

The Hospital Formulary, revised in 1940, has been undergoing a drastic revision during the year with the Director of the School of Pharmacy as Chairman of the Drug Committee. Dr. Hugo Krueger, Professor of Pharmacology, Dr. Joseph McDonald, Professor of Surgery, and Dr. Wm. Pyles, Professor of Internal Medicine, have been the other members on the Committee. The attempt is being made to exclude all drugs that are not pharmacopoeial. Both the U.S.P. (or N.F.) and B.P. names will be listed when used as titles. It is hoped that the new edition will appear in the autumn of this year.

Hasan S. Hasan, Ph.G., Ph.C.,
University Pharmacist.

OLIVE OIL AND SOAP MANUFACTURE IN NABLUS

In my home town, Nablus, olive oil is used in the soap industry.

Olive trees grow on the calcareous soil of the hills and mountain sides, around the city of Nablus, in the heart of the hilly part of Palestine.

The trees are planted mainly from cuttings, but seeds may be used. Wild trees are grafted with good qualities of cultivated ones to have a better yield. Irrigation, fertilization, and pruning of the trees are rarely practiced, due to the large number of trees, and due to the lack of knowledge of such important procedures.

In many villages, the peasants uproot the trees for fuel. Continued teaching by the government, has however reduced this uprooting and has even resulted in an increase in the number of planted trees.

The fruits are harvested during November to December. Collection is carried on by beating branches with sticks and poles. No sorting of fruits is done. All fruits are packed in sacs and sent to the market or to be pressed.

The fruits are placed in a stone crusher, where virgin oil is obtained. The crushed fruits are put in bags made up of hemp, and subjected to pressure in hydraulic presses, oil of a second quality is obtained. This is filled in skins, and transported on the back of camels and mules to the soap factories, where it is poured into wells made for storage purposes.

The soap factory is run by the "Muallem" (Master), who is responsible for the process of saponification.

The big gate of the factory leads to a wide yard, in which deep wells are made in the ground. To the other side of the wells, there is the kettle or pan, which is made up of copper, and is of variable dimensions. It is from 3 to 5 m. in diameter, and about 3 m. deep. It is encircled with a wall to prevent workers from falling into it during the boiling process. The kettle is placed directly above the oven, which is found below the yard. The fuel used is mainly crushed seeds of olive, as they come from the second pressing. It is very cheap, and of high fuel value. When carbonized, it is drawn and extinguished with water, and sold as a fuel for home use under the name of "Dok".

The kettle has an opening at the bottom, which leads to a number of basins made up of stone.

Sodium hydroxide is the alkali used. It is imported in big barrels. The barrel is opened from both sides, and water is poured on it to dissolve it. A saturated solution is made and poured into the kettle, this is diluted with water, and boiled. Olive oil is added, and the whole mixture is boiled. It is stirred with wooden poles to ensure thorough mixing. When soap starts to be formed, fire is removed, and the whole mixture is left to stand in the kettle. Soap floats above the alkaline solution and the non-saponified oil. The lower liquid is drawn from the opening at the bottom of the kettle. Heat is continued and this operation may be repeated two or more times, until all the oil has been completely saponified. Fire is

now removed, and the saponified mass is taken up and poured on the floor of the second storey. The floor is covered with paper. The soap is flattened, and cut into cubes 150, and 250 grams each and stamped.

The stamp bears the name of the manufacturer, his city and his trade mark. The trade mark is the characteristic thing which every consumer looks for. If he has the confidence in a certain brand, it is very difficult for him to change to another brand.

The cakes or cubes are carried to a second room, which is spacious, and left for a number of days. Moisture evaporates and the cubes are arranged in very neat pyramids and further drying takes place.

Some factories wrap the cakes of soap with paper, others do not.

We notice how primitive such an industry is, and the field of improvement is so wide that every chemist of us may try to improve it. The raw materials: oil, alkali, and fuel are very cheap, and workers could be hired at low wages so that the industry is very profitable. Glycerin, the valuable by-product is not separated.

We hope to have better factories and to have an improved product.

Abdur-Rahman S. Kadri, Phar.III

— 0 —

"There goes the woman I love".
"Why not marry her,"
"Can't afford it, she's my best customer".

— 0 —

Pharmacist: "I must paint your husband's throat with Silver Nitrate".
Wife: "Use Gold Nitrate... We can afford the best".

— 0 —

"Tell me truly, doctor, what are my chances to recover,"
"Just 100%. Statistics show that only nine out of ten die from your disease - and nine of my patients have already died from it".

— 0 —

Dentist: "Open wide, please wider".
Patient: "A - A - AH"
Dentist (inserting rubber gag, towel and sponge): "How is your family"?

— 0 —

"I can't sleep", wailed a voice in his ear, as the doctor got out of bed to answer the phone at three in the morning. "Hold the wire", said the doctor crustily. "I'll sing you a lullaby".

SUMMARY OF A PRESCRIPTION SURVEY OF JAFFA - 1946

This prescription survey of Jaffa is the first of its kind to take place in Palestine. In collecting the prescriptions many difficulties were encountered. The main one was the objection of the pharmacists to giving us their register book as, in the first place, they pretended that they needed it, and secondly, the book contained names of clients taking medicines on account, names of patients, and other information indicating the nature of the disease of the patient as might be judged through the prescription; information which should solely be confided to the pharmacist himself.

Nevertheless, prescriptions were collected from five different pharmacies by taking those of the first five days of the month for a year. The resulting total number came to be 5000.

Most of the repeated medicines were not registered by the pharmacist in the book, as these were refilled by reference to the respective serial numbers. Only those containing narcotics are refilled on the presentation of new prescriptions, and hence registered.

Proprietary preparations were mostly dispensed without being registered as in this part of the world, the prescription is always returned to the patient. The narcotics, and those sold on account, and also those prescribed together with a preparation, were registered, however.

Therefore, this survey will not give an accurate record but more or less indicate an idea as to the drugs used and handled.

In going through the prescriptions we found that:

1. The inscription was written in:

English	2700	times
French	330	"
Latin	840	"

 and the remainder of the 5000 was a mixture of English & Latin.

2. The Signa was written in:

Arabic	2600	times
English	830	"
Latin	250	"
French	330	"
Hebrew	90	"

 and the rest a mixture of English, Arabic and Hebrew.

3. All were written according to the metric system except 125 which were written in the English system.

The following tables present a summary of the result of the survey:

Table I

Frequency of Occurrence of Various Numbers of Ingredients per Prescription_n

<u>No. of Ingre./Prescription</u>	<u>No. of Presc. which they occur</u>	<u>Percentage Occurrence</u>
1	2200	44.00
2	424	8.48
3	528	10.56
4	382	7.64
5	384	7.68
6	493	9.86
7	330	6.60
8	154	3.08
9	80	1.60
10	25	0.50

TABLE II

Frequency of Occurrence of various Classes of Pharmaceutical Preparations

<u>Type of Prepn.</u>	<u>Occur.</u>	<u>% Occur.</u>	<u>Type of Prepn.</u>	<u>Occur.</u>	<u>% Occur.</u>
Ampoules	75	1.50	Packages	339	6.78
Cachets	471	9.42	Paints	8	0.16
Compresses	23	0.46	Pastes	6	0.12
Ear Drops	37	0.74	Pills	10	0.02
Eye Drops	87	1.74	Powders	56	1.12
Oral Drops	146	2.92	Suppositories	18	0.36
Nose Drops	31	0.62	Tablets:		
Enemas	5	0.10	Sulfathiazole	319	
Gargles	38	0.76	Sulfadiazine	335	
Inhalations	16	0.32	Sulfamerazine	15	
Lotions	87	1.74	Sulfaguanidine	222	
Liniments	41	0.82	Sulfapyridine	39	
Mixtures	1536	30.72	Others	400	
Ointments	232	4.64	Total Tablets	1330	26.60
Eye Ointments	11	0.22	Patents "Others"		7.82

TABLE III - DRUGS MOST USED

The following 36 drugs and galenicals occurred more than 100 times in the 5000 prescriptions:

<u>Drug</u>	<u>No. of Times it occurred</u>	<u>Drug</u>	<u>No. of Times it occurred</u>
Sodium Benzoate	506	Sodium Salicylate	192
Potassium citrate	503	Sodium Citrate	187
Syrup Tolu	500	Aqua Menth. Piper.	185
Tr. Cardamon Co.	466	Tincture Lobelia	180
Amidopyrine	422	Tincture Kino	158
Sodium Bicarbonate	380	Glycerin	155
Sulfadiazine Tab.	335	Potassium Acetate	150
Sulfathiazole	319	Lactic Acid	145
Syr. Aurant.	295	Acetyl Salicyl. Acid	138
Tannalbin	290	Syrup Raspberry	135
Phenobarbital	240	Tincture Senega	135
Codeine Phosphate	235	Zinc Oxide	135
Lactose	231	Boric Acid	127
Extr. Belladonna	223	Tinct. Nux Vomica	125
Sulfaguanidine Tb.	222	Quinine Aethyl Carb.	117
Acacia	220	Aqua Destillata	115
Liq. Ammon. Acet.	215	Tincture Belladonna	112
Petrolatum	210	Bismuth Carbonate	102

TABLE IV - OFFICIAL DRUGS AND GALENICALS PRESCRIBED

Out of 403 drugs and galenicals occurring in 5000 prescriptions:

- 240 are official in B.P. '32 and addenda
- 247 are official in the French Codex
- 210 were official in U.S.P. XII
- 195 are official in U.S.P. XIII
- 113 are official in the four Pharmacopoeias
- 59 are not official in any of the four pharmacopoeias

TABLE V

Ratio of Patent medicines to total prescriptions filled is 36.2% according to the whole prescriptions taken.

Munir Bastami & Antoine Masa'd
Phar. IV

FROM PUNO TO JAVA

The story begins long before that evening when Charles Ledger received a letter from his brother in London, saying, "The Dutch Plantations of Cinchona in Java became a reality and Hasskarl is promising cheap quinine."

"Our England is always late" he said to his wife as she entered the room. "Hasskarl reached Java safely on a warship and planted his seedlings while our government awoke only now, and sent a youngster in his twenties to lead a company of few men who have not seen Cinchona deeper than the bark. Our Great Britain which destroyed the Great Spanish Armada of Philip IV could not smash this Spanish monopoly of Cinchona trade."

"Did Manuel tell you," asked his wife.

"No, what,"

"He said that the Spanish discovered the trick of Hasskarl who entered South America under the name of Müller, and now they are after Markham who was entrapped, but was brave enough to make the Indian soldiers fly away at the sight of his pistol."

"I know that our young men are brave," said Mr. Ledger, "but they don't think. He should have asked where the best Cinchona grows.... He should have gone to the South of this lake, Titicaca".

The Ledgers were living in Puno on the shores of Lake Titicaca on the border separating Peru from Bolivia.

Then Mr. Ledger spoke in a low voice as if speaking to himself, "If I send our faithful Manuel to that part to get us some of the best seeds, we will have them sent to England,..."

"It should be done!", interrupted his wife enthusiastically. "Yes! we will lose if Manuel is away from us, and he will be in danger, but it should be done!"

It was in 1860 A.D. that Manuel crossed the borders to Bolivia. But, as mentioned, the story began long before that date.

Cinchona is a tree of several species indigenous to the Andes, namely Colombia, Equador, Peru and Bolivia, all lying along the western coast of the upper part of S. America. In the bark of Cinchona lies the specific remedy for the biggest enemy of civilization - malaria. Malaria is caused by the Plasmodium that thrives on and bursts the red blood corpuscles, without which no energy can be transported to the different parts of the human body, thus sapping the energy of the victims and ultimately causing the decline of a nation's civilization. The Spanish said that the value of the bark became known only about 1620 when the wife of the viceroy of Spanish South America, Countess of Chinchon, fell ill with malaria in Lima, the capital of Peru. She was treated by drinking wine macerations of the Peruvian bark (cinchona bark). It was her will that some of the bark should be carried over to Spain.

Other historians contest this story saying that the Jesuit priests learned the use of the bark from the Indians, and took it to Europe as a secret remedy for malaria, under the name of Jesuit's bark with which they saved many lives in Italy and France where malaria raged. However, the name "Jesuit's bark" caused much harm as the prejudiced Protestants refused to touch it.

The price of the bark in the 16th and 17th centuries reached fabulous amounts. It was said that the first shipments of the

bark were exchanged for their weight in gold. Profiteers and quacks invaded this field of malaria therapy. Robert Talbor, an English quack, for instance, prepared a secret remedy for malaria with which he saved the nobility and even King Charles II from death by it. He was rewarded by the king with the title of Knight. Then he went to France to treat the son of Louis XIV, after which Louis XIV bought the secret formula from Talbor for the title of Chevalier of France and 2000 Louis d'or per annum. The secret was no more than a strong infusion of Peruvian bark aromatised with rose water and lemon juice.

Quacks also began to make guesses about the active ingredient of cinchona. A Frenchman announced that gelatin was the active constituent that cured malaria. But finally in 1820, two young French pharmacists Pelletier and Caventou announced that they extracted quinine from yellow cinchona bark. They did not take any patent on their discovery, but they were rewarded and honored by their country.

The Spaniards became aware of the treasure they possessed in the Andes, so they passed laws forbidding all but the dead bark of the Cinchona tree to be exported.

Yet in 1865 George Ledger received in England, a parcel weighing 14 lbs. that contained minute seeds. This was sent to him from his brother Charles. The seeds had been collected by that faithful servant Manuel who spent five years in the mountains to collect them and returned to be discovered and put in jail for the rest of his life.

The English Government refused to buy the offer of the Ledger brothers for they were relying on Markham who went to India and Ceylon to plant the seedlings which he succeeded in smuggling out of the Andes.

Only one pound of the 14 lbs. was purchased by the Dutch and sent to the Hasskarl plantations which became the Government Cinchona Estate in Java. The pound of seeds was received by van Gorkom the director at that time. He found that a part of the seeds had deteriorated, but 20,000 seeds germinated. Of these 12,000 seedlings were nursed and cultivated.

In 1872 a young Dutch chemist named Moens assayed the barks of different species of Cinchona and found that Cinchona Ledgeriana, as the English quinine manufacturer Howard called the tree, yielded about 10% of alkaloids while the yield of the other species rarely reached 5%.

Thus the one pound of Ledger seeds saved the Dutch Cinchona trade from failure. For the private planters began to give up Cinchona cultivation. They said that it was not worth cultivating a tree for 15 years to yield 3% of alkaloids while they can have yearly crops of coffee, tea, tobacco or Hevea rubber from other trees.

Yet the Cinchona Ledgeriana was difficult to grow and was poor in quinidine, cinchonine and cinchonidine. This problem was solved by van Loon who suggested to Gorkom the grafting of C. Ledgeriana on C. succirubra, thus obtaining a stronger tree whose stem-bark gave a worth while yield of quinine and the root-bark yielded alkaloids rich in quinidine, cinchonine and cinchonidine.

The English cinchona plantations in India and Ceylon failed because of poor yield as was the case in Java before Ledger seeds reached it.

Today the world consumes 650 to 750 tons of quinine yearly - more than 90% of which was supplied by about 100 private Dutch plantations in Java before the second world war.

Hani Kavar, Phar. III

Condensed from - Silverman: Magic in a Bottle
Taylor: Cinchona in Java

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INSECT AGE

A super-fly, born, and in residence at the Orlando Laboratories, Bureau of Entomology and Plant Quarantine, U.S.B.A. is a living testimony that science can never rest on its laurels in the continuous fight against diseases of man, animal or plant.

This fly, now in the 14th generation of a special breeding, is able to inhale double doses of DDT with apparent impunity. This does not mean that DDT may lose its place among insect killers.

According to these technicians, as flies are killed off by any insecticide, new, robust and more resistant strains develop from survivors.

from Drug and Cosmetic Industry.

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"It is provided in the nature of things that from any fruition of success shall come forth something that shall make a greater effort necessary" - Walt Whitman

_____ 0 _____

"What thing thou lovest most
Thou makest its nature thine:
Earthy, if that be earth
If that be God, divine."

AUTOGRAPHS

ألى اللقاء