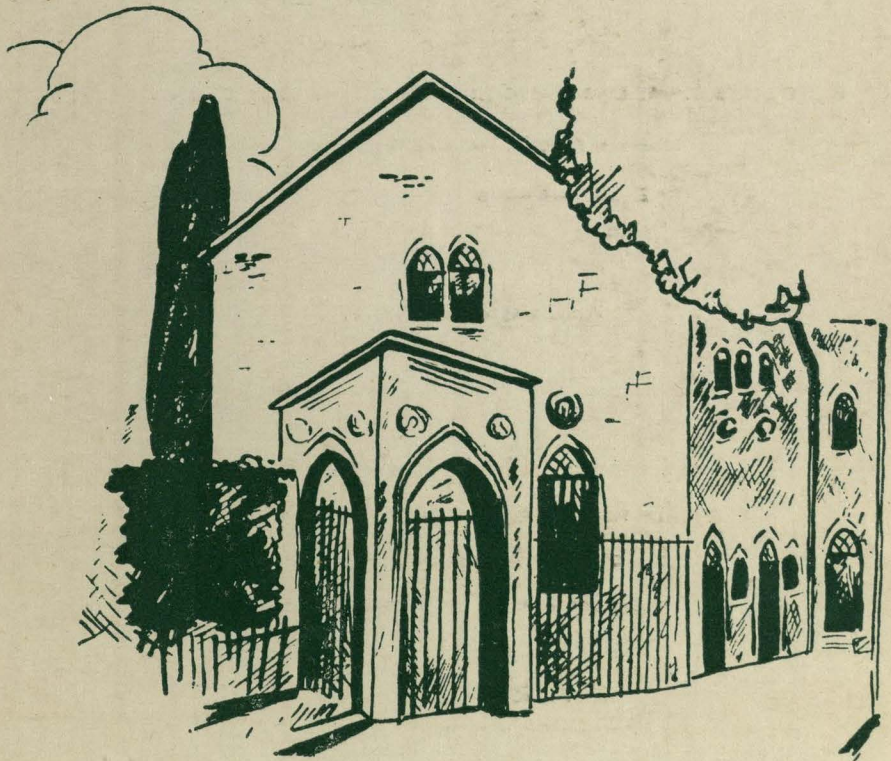


The Apothecary



1950

THIS NUMBER

IS

RESPECTFULLY DEDICATED

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PRESIDENT

STEPHEN B. L. PENROSE, Jr., Ph. D.

Beasley Leonard 1908



FOREWORD

I am happy to have this opportunity to express my greetings and regards to the students and faculty of the School of Pharmacy. I have a number of ideas with regard to Pharmacy which I would like to share with you.

Pharmacists are in the habit of entitling their field of service a profession. Not all pharmacists, however, recognize the full meaning of that term as it should apply to their attitudes when they enter practice and before. The term profession is an honorable one which implies serious obligations on the part of its members.

A profession is distinguished from other forms of occupation by three distinct characteristics. First, it is a field which is limited to a relatively small number of people who have undergone a period of intensive specialized training. Secondly, the members of the group who have successfully passed their training period are expected to maintain standards of performance which are common to the entire group, to which, if they are to be worthy members of the profession, they will give their full support. If they are to be and to remain worthy members of the profession they will not deviate, regardless of influences which may be exerted upon them, from a full maintenance of the professional standards.

In the third place, and I consider this to be the outstanding characteristic of a profession, its members are necessarily and essentially devoted to the service of others. Men enter business, the trades and other non-professional forms of occupation largely because they offer an opportunity for self-support and the acquisition of wealth. Members of professions, on the contrary, enter their work with the primary idea that it will serve the welfare of other members of society. In the very best sense, professional people are the servants of the mankind, and their major concern is with the protection and the development of the societies which they serve. A pharmacist who is interested solely in his own advancement and in the money which he can make from his profession has made of pharmacy a trade and has deprived it of the right to be called a profession.

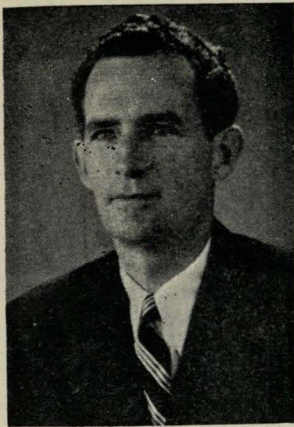
If you will apply these three criteria which I have mentioned to any of the professions with which you are familiar, you will find that there are many practitioners who deviate from them in one way or another. These men are not a credit to their calling for they have failed to realize the personal obligation they have assumed in calling themselves professional men.

The profession of pharmacy is a highly honorable one and in some respects it is more difficult than a number of the others. There is less glory likely to accrue to the conscientious and able pharmacist than there is perhaps to the outstanding practitioner of medicine or surgery. The pharmacist is not so likely to catch the public imagination and to win popular acclaim. Nevertheless, without the unsung services of the pharmacist, the medical man would in general be unable to make the advances in the protection of the public health for which he frequently receives the major credit. To some this may seem to be unfair but to the professional pharmacist it is a matter of slight concern since his major interest is in sincere service rather than in fame.

I hope that these views which I have expressed may become general, not only to the pharmacist at the AUB but to the public whom they serve. But whether or not they are widely shared, they provide sufficient reason for you all to take pride in the profession which you have entered or are entering. They also provide sufficient reason for me to salute you with the respect which you deserve. It is my hope that you will always have for yourselves and for the work of your profession the same respect which I feel for it.

STEPHEN B.L. PENROSE

President



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A. F. HADDAD

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F. STEPHAN

Professor
C. ABOUCHAAR

Mr. E. VORPERIAN

Mr. R. KARAMANUKIAN

TO THE 75TH GRADUATING CLASS

On the occasion of your graduation, I take great pleasure in extending to you the congratulations and best wishes of your teachers with whom you were associated during the four years of your study at the School of Pharmacy up to the last moment before leaving your Alma Mater. We all feel happy because we have done the best we can to give you a good professional training as well as a basic scientific education which is far beyond what is necessary to fill the ordinary day's prescriptions. We hope you will apply this education to creative thinking.

At the end of your school days I should like to admonish you to remember that your school training is only the prelude, that success in the career you have chosen rests upon many potentialities which you may possess. Of these, in my opinion, the following are the most important :

The ability to develop your professional capacities for which you were trained during your school days. To perform this task you must keep abreast of pharmaceutical progress by reading scientific pharmacy journals. Remember that the medical and pharmaceutical sciences are progressing very rapidly, and therefore your professional library should be enriched yearly with new books. Always have the latest edition of the pharmacopoeias used in your country. Do not follow the mistake of some of your predecessors who, at the middle of the twentieth century, still refer to a book in which they studied some fifty years ago. Take active part in pharmaceutical and medical organizations in your locality and remain closely in touch with your Alma Mater. You should do your part in the advancement of your profession and make it more serviceable to humanity. No matter how much economic pressure forces you to carry of the sideline commodities and proprietaries let your prescription laboratory be your chief interest and occupation. The public expects to have its prescriptions filled by pharmaceutically trained personnel under proper sanitary conditions, and from the best quality and properly preserved drugs and therefore you should keep your dispensing laboratory adequately stocked, well equipped, clean and attractive.

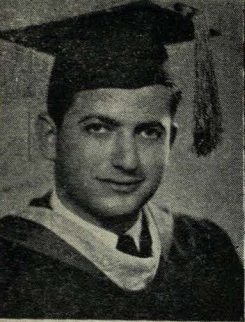
The ability to practice the virtues and traits which experience has found necessary for success in every profession. Among these are : accuracy, honesty, intelligence, industry, skill, reliability, cleanliness, orderliness and, not least, the pursuit of general culture — the capacity to enjoy the beauties of life, loyalty to one's fellowmen, and full participation in the duties of citizenship. A successful pharmacist can not confine himself to his profession to the exclusion of those interests which concern every man. A pharmacist should lead in civic activities and play a part in social life.

The ability to mix and mingle with other people and in particular the ability to understand one's fellowmen is a decided asset to every man in any phase of life. To live in understanding with your colleagues, with your neighbours, with your families and with yourselves makes your life more useful and happier.

Finally, **the ability to serve cheerfully and intelligently** brings to you and to your profession the respect and appreciation of your fellow citizens. Service is the cornerstone on which the principles of our vocation are built for as soon as we stop rendering an unselfish service to humanity pharmacy will cease to be a respectable profession.

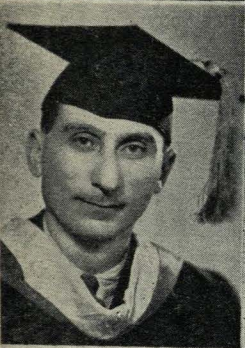
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NUBAR BABIKIAN

Aleppo, Syria



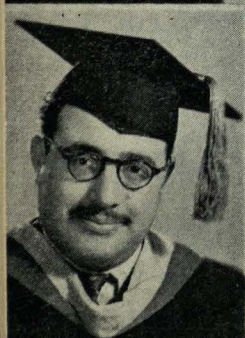
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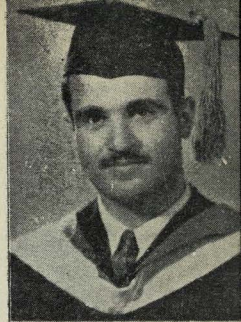


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ANWAR A. HAKIM, B.A.

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FUAD HAKIM, B.A.

Kousba, El-Koura

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Droguerie du Liban

Bab Edriss, Beirut, Lebanon.



HAGOP ISHKHANIAN, B.A.

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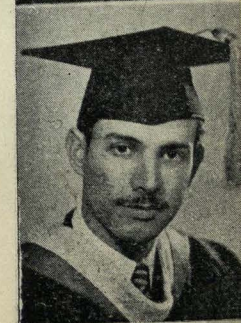


NADIM M. KHALLOUF

Rue Jeanne d'Arc

Ras Beirut

Beirut, Lebanon.





FARID GOUSSOUS

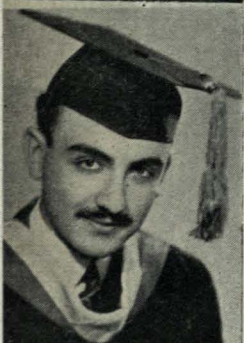
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HAGOP MEKHDJIAN

P. O. B. 4025

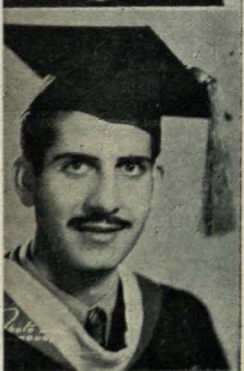
Jerusalem (Old City), Jordan



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P. O. B. 4115

Jerusalem (Old City), Jordan.



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P. O. B. 477

Amman, Jordan.

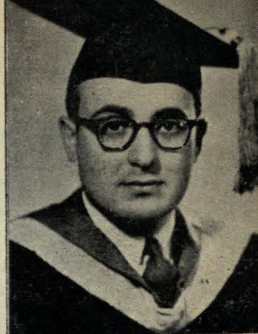


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Kerak, Jordan.

TZOLAG TUTELIAN

Pharmacie Massis
Tyr, Lebanon.



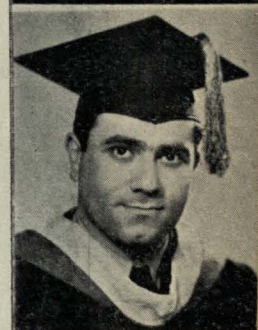
MARIA WIDACKA

c/o American University
Beirut, Lebanon.



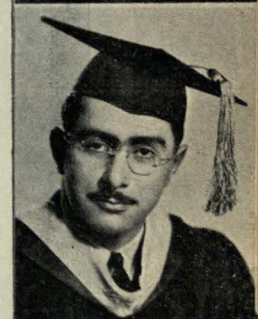
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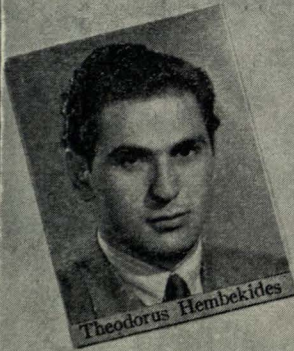


FUAD ZARU

Ramallah, Jordan,



Third Year





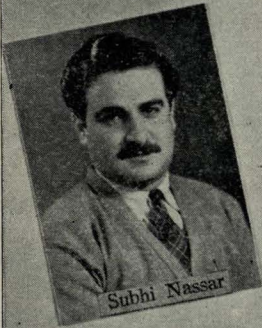
Manuk Kemelian



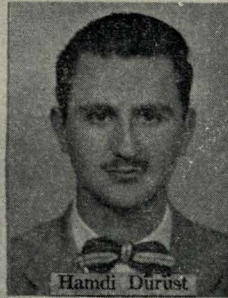
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Sarkis Keyorkian



Subhi Nassar



Hamdi Durust



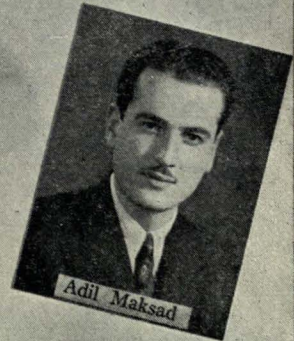
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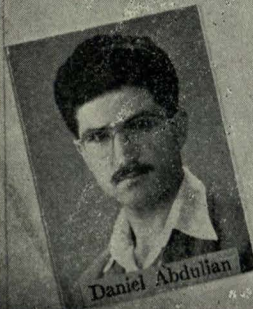
Riyad al-Alami



Samuel Manushakian



Adil Maksad



Daniel Abdullian



Karekin Sagherian



Milad Milad

Second Year



Jerry Zerounian



Sammy Atala



Ilyas Farah



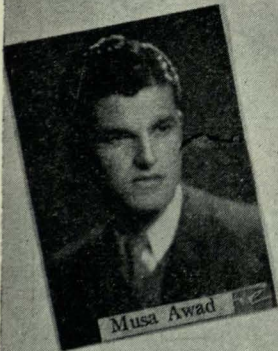
Ara Israbian



Umayyah Subra



Amin Ismail



Musa Awad



Ilyas Hawwa



Morris Karam



Faris Musallam



Samih Afifi



Abdul-Al Awad



Elie Nuwaysir



Jubran Atallah



Muhammad al-Kurdi



Rizkallah Mazlum



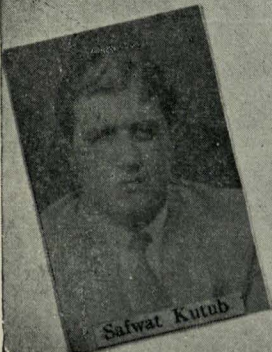
Nubar Tepelian



Rifat Rishani



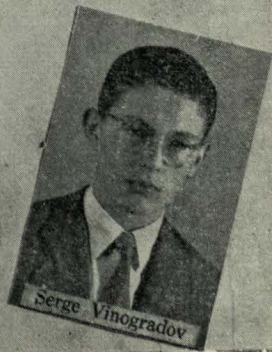
Thabit Darani



Safwat Kutob



George Dayian



Serge Vinogradov

First Year



Ilyas Zananiri



Edward Burtkush



Kasim Sad-ud-Din



Shakib Ghulmiyyah



Fuad Nasr



Anis Muashshir



Berj Hekimian



William Habashi



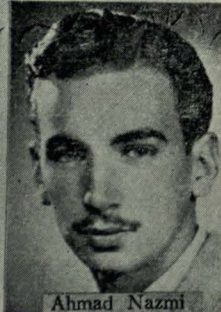
Ilyas Sartan



Maurice Naimah



Amin Husayn



Ahmad Nazmi



Zuhayr Kanan



Nicolas Trochalakis



Berin Tutunji



Hamid Jabr



John Shahinian



Khalil Samir Bishuti



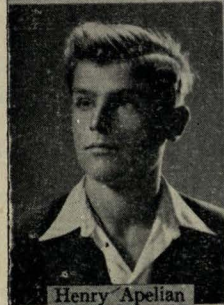
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William Haddad



Samih Darwazah



Henry Apelian



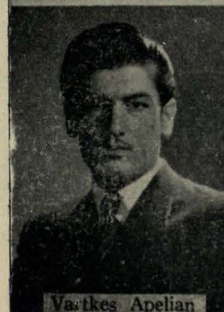
Usama Mikdadi



Wasfi al-Khazin



Frederic Simonian



Vartkes Apelian



Maurice Mikhail



Muhyiddin Itani



Sami Halabi

Eugénie Abu-Shadid

PHARMACY IN TURKEY

A glance at our profession in the twenty-seven year old Turkish Republic reveals a totally different picture from that of the days of the Ottoman Empire. Among the many amazing reforms that the Republic has introduced into the country, the enactment of proper and modern laws regulating the practice of pharmacy and safeguarding the prestige of the pharmacist as well as the health of the citizens gave a strong impetus to the renaissance of the profession. To give you a better idea of the present status of the profession in Turkey, I wish to draw a picture of pharmacy during the Empire days.

First, no national pharmacopoea existed, the **French Codex** was used throughout the Empire, but did not respond to the true needs of the area. Second, the laws governing practice were not adequate, in fact they were too loose ! Mostly a concession of the foreigners, pharmacy was not looked upon as a national profession. Almost nothing was known of a professional organization ; no documents are available for the period prior to 1911 to show any existing union or association. Up to 1930, **The Association of the Pharmacists of Turkey**, as it came to be known, was a gathering of the owners of the leading pharmacies, and was little concerned with the rest of the pharmacists or with the ideals of the profession. There were no local manufacturers, almost every item had to be imported. A quarter of a century following this period of confusion and lack of organization we see, today, a prosperous local manufacturing industry, a complete dissolution of the foreign concessions, a strict control of the inflow of fo-

reign proprietaries — allowing only those of proven merit and those which can not be made locally, and efficient laws ; thus a powerful disciplined organization that can be called Turkish Pharmacy.

To get a still clearer picture of the profession as it stands today, it may prove useful to outline the laws that have contributed so much to this renaissance :

Law on the Turkish Pharmacopoea passed 1926, introduced and established the desired standards. The Committee on the Pharmacopoea consists of the professors of the Medical Faculties of the Universities of Ankara and Istanbul, of government analysts, of prominent pharmacists, and of the representatives of the Association.

The Turkish Pharmacopoea was first published in 1930 and revised in 1940. A supplement to the latter was issued in 1948. The 1940 edition with its 1948 supplement compiles 773 monographs as well as a number of charts, tables and analytical notes. This being the only officially recognized standard of practice within the realm of the Turkish Republic, all imported, manufactured or cultivated medicinals must conform to the requirements and specifications stated therein.

Law on Pharmacists and Pharmacies, 1927, established the qualifications of practitioners : Turkish citizenship, Ph. C. degree, two years of practice in an approved pharmacy in Turkey, and evidence of financial ability to operate within the specifications of the law. An auxiliary decree issued by the Ministry of Health and Social Aid, within the provisions of the same act, limited the number of pharmacies to one pharmacy per ten-

thousand of population and gave details on the location, internal construction, and dimensions of the pharmacy and the manner of operation of the various pharmacy services, also details dealing with inspections, employees, sale of chemicals to the public, labeling requirements, urgent medicines, etc...

A later enactment put down the qualifications required of persons operating wholesale drughouses, or representing foreign manufacturers, and specified restrictions on their various transactions.

Law on Pharmaceutical and Medical Proprietaries, 1928 amended 1943, subjected the manufacture of the local proprietaries and the import of the foreign specialties to permit and to strict control by the General Directorate on Pharmaceutics and Proprietaries of the Ministry of Health and Social Aid. Before the permit for the manufacture or import of a proprietary is issued, it has to be submitted for analysis in the government laboratories and for approval of a fair selling price. Official sera, vaccines, reagents, pharmacopoeal preparations marketed under their official titles, foodstuffs and toilet articles which do not contain potent ingredients are exempted from these requirements. Hair and dental preparations, however, are not exempted. The opening of manufacturing houses and of agencies of foreign specialties is subject to specific professional requirements. According to this act, all articles that are found deteriorated, or that have been manufactured by un-authorized persons or under unsuitable conditions, or manufactured illegally or smuggled into the country are automatically confiscated, and the person or establishment involved in any part of the transaction is condemned within the specific indications of the Penal Code. The same act reserves the right of the Ministry to inspect places of manufacture or of

storage and sale, to examine labeling claims and to collect samples for analysis. It may be of interest to quote Article 13 to illustrate how strict the law is in the case of specialties :

« It is forbidden to advertise any proprietary in praising terms, or by attributing to it therapeutic properties that are not possessed by it or by exaggerating the existing healing effects, through the use of projections, motion picture, radio, or any other means of advertisement. Only notices in the form of «...can be used in such conditions and such diseases » may be permitted for newspaper publication or for inclusion with the directions for use. Specialties which are to be dispensed on the prescription of a physician can not be advertised elsewhere except in medical literature. Forms and wordings of the advertisements have to meet the approval of the Ministry in advance ; the advertising can only be done in certain sections of the periodical and the space assigned by the Ministry ».

Law on the Practice of the Medical Professions and their Affiliations, 1928, provides, beside other things, the regional distribution of physicians, pharmacists, dental and veterinary surgeons throughout the country. The country is classified into several « Medical Regions », and the members of the above mentioned professions become the members of the « Regional Medical House » of that region. All misunderstandings likely to occur between any of the members as well as cases of fraud are dealt with by the « Council of Professional Dignity » of each house. It is within the powers of these councils to suspend any member found guilty of unethical acts, from the practice of the profession up to a period of three months and to subject him to heavy fines.

An act for the creation of a separate « House of Pharmacists »

is now under consideration by the Grand National Assembly of Turkey (the Parliament).

Law on Narcotics, 1933, has been adopted in its international form, except for few modifications. (For example, Opium Tincture, Camphorated Opium Tincture, Codeine and its salts are not considered narcotics).

Within a very short time, the effects of these enactments began to be felt all over Turkey. The local pharmaceutical industry began its speedy growth. The School of Pharmacy, affiliated with the Istanbul University, had to turn down many, accepting only the best candidates among the hundred applicants. Medicines became available to the public at cheaper prices, and were not less effective than the foreign preparations. The local resources are now being tapped, more persons are getting interested in the possibilities of exploiting the hidden and buried resources of the country, with the result that the national budget is now much better off. This was especially important during the second world war when the local preparations supplied the whole country and the imports had to be cut to a minimum.

The Association of the Pharmacists of Turkey, existing since 1911 grew into a powerful organization and a strong defender of the cause and the rights of the profession. Its monthly organ, **The Pharmacologist**, is now in its nineteenth year of publication.

In conclusion, to say that the profession of pharmacy has reached its perfection in Turkey would only be wishful thinking. The profession, however, is very rapidly advancing; the degree to which the safety of the public and the ability and integrity of the average practitioner have been brought is noteworthy.

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Hamdi Dürüst

Pharm. III

ABSTRACTS

FROM CURRENT LITERATURE ON NEWER DRUGS

ANTIBIOTICS

Progress in the antibiotics continues. Aureomycin, Bacitracin and Chloromycetin were discussed in last year's issue, but since that time considerable progress has been made in the clinical application of these antibiotics.

Chloramphenicol (Chloromycetin) is now known to be effective against a wide range of bacterial, rickettsial, and viral infections, including undulant fever, bacillary and urinary infections, typhus, scrub typhus, and Rocky Mountain Spotted fever. The chemistry of Chloramphenicol has been well established and a method for its synthesis has been perfected. It is the first antibiotic to be produced by chemical synthesis on an economically feasible basis. The two forms, natural and synthetic, are identical in chemical, physical and clinical properties. Chloramphenicol will be admitted to the U.S.P. XIV. The drug is administered orally.

The parenteral use of Chloromycetin is still under investigation. A method for preparing Chloromycetin solutions for injection is described by O'Brien (Bull. Amer. Soc. Hosp. Pharm. 6, 277, 1949 — Abst. in Pharm. J. 163, 488, Dec. 1949.). The author reports that Chloromycetin is relatively stable and retains all of its therapeutic activity between pH 0.4 and 9.56; at pH 10.82, it has only 13% of its original activity. It is not very soluble in water; it dissolves 1 in 8.35 in propylene glycol; it is readily soluble in chloroform and ether.

The author has used solutions of 7.5, 10 and 15 per cent., but finds that the

15 per cent. solution is not stable. The solution has been given both intramuscularly and intravenously, the latter being considered preferable.

Bacitracin was found to exert a profound antibacterial effect against many gram-positive pathogens including the common streptococci and staphylococci, and to destroy some gram-negative organisms such as the Spirochetes of Syphilis and of *Endameba histolytica*. This antibiotic is now available in the following forms as C.S.C. Pharmaceuticals;

1) Bacitracin powder, in vials containing 2000, 10,000 and 50,000 units for the preparation of solutions for topical use and not for parenteral systemic use. The solution injected directly into the base of the lesion leads to prompt remission and usually obviates the need for surgery. Carbuncles, large furuncles and infected wounds may be treated in this manner.

2) Bacitracin nasal drops containing 25 units of bacitracin per cc. and 0.25% desoxyephedrine are recommended for the treatment of acute and chronic sinusitis.

3) Bacitracin ointment is widely used in the local management of infected skin lesions. Bacitracin Ophthalmic Ointment is advantageously employed in many infectious lesions of the eye.

4) Bacitracin troches, 1000 units each are valuable in the management of pharyngeal and oral infections due to bacitracin-sensitive organisms.

5) Bacitracin oral tablets, the newest dosage form, lead to good results in amebiasis. Each tablet contains

10,000 units of bacitracin. These tablets exert their action locally within the intestinal tract, and little or no bacitracin is absorbed into the blood.

Aureomycin was discovered to be effective against amebic dysentery, herpes zoster, whooping cough and is under trial in the treatment of syphilis.

Dihydrostreptomycin is an hydrogenated product of streptomycin. Its bacterial activity may be said to parallel that of streptomycin. However, clinical studies reveal that, following intramuscular injection, dihydrostreptomycin is less likely to produce eighth nerve damage than streptomycin of comparable dosage. For this reason, it may be administered to patients with tuberculosis with less likelihood of vestibular and auditory damage. Thus dihydrostreptomycin offers an advantage over streptomycin in treating such cases in that larger doses may be given safely if necessary and therapeutically maintained over longer periods. Unfortunately, resistant strains of organisms appear to develop as rapidly with dihydrostreptomycin as with streptomycin, and therefore this new drug does not overcome this disadvantage. Dihydrostreptomycin in the dry form is stable at room temperature for 18 months. It is readily soluble in aqueous solvents. Such solutions may be stored at room temperature for one week. The drug is administered by intramuscular injection as an adjunct to other measures in the treatment of tuberculosis. It is not a definitive treatment and is not a substitute for rest, nutrition, and other routine treatments. Unnecessary use of the drug may interfere with the effectiveness of the antibiotic when there is a more serious need, for it, and therefore its use should be limited for indicated cases of tuberculosis.

Dihydrostreptomycin in the form of its sulfate or hydrochloride is supplied by many firms in 25 cc. and 50 cc. amber-capped vials containing the equivalent of one and five grams respectively of streptomycin.

Tyrothricin — This antibiotic was

first isolated in 1939 by R.J. Dubos from a peptone culture of the aerobic sporulating soil bacterium *Bacillus brevis*. Within the past two or three years this product has been used in several ways. It is now available under the following forms :

1) Tyrothricin 2% alcoholic solution to be diluted before it is applied externally (usually 1.5-2.5 cc. per 100 cc. of distilled pyrogen free water). Alcoholic solutions of tyrothricin are stable even when maintained at high temperatures, and the colloidal suspensions of tyrothricin in distilled water are fairly stable also. Solution Tyrothricin Concentrated Sharp & Dohme.

2) An isotonic buffered solution containing tyrothricin and some vasoconstrictor is available for use in the symptomatic treatment of nasal congestion accompanying bacterial infections. It is applied to the mucous membrane of the nose and accessory sinuses by tampon, irrigation, drops or spray. — Prothricin, Sharp & Dohme; Gluco-thricin, P.D. & Co.

3) Tyrothricin Nasal Jelly (Smith-Dorsay Co.) containing ephedrine sulfate 1%, tyrothricin 0.05% in a jelly base. For use in the local treatment of acute and chronic sinusitis and other ear and nose infections due to tyrothricin susceptible organisms.

4) Tyroderm, Sharp & Dohme, is a cream containing tyrothricin 0.5 mg. per gm. in a special emollient base.

5) Troches of tyrothricin combined with benzocaine or some other local anesthetics are also available for local therapy of mouth and throat infections caused by gram-positive organisms. To some is also added a quaternary ammonium compound such as cetyl-dimethyl-benzyl-ammonium chloride.

6) Tyrothricin is also available in a solution with benzyl benzoate and benzocaine for the treatment of scabies. Tyroscafe, Sharp & Dohme.

Gramicidin is a pure antibiotic substance which occurs to the extent of 15-25% in Tyrothricin. Gramicidin

is not to be confused with Gramicidin-S. The latter is a bacterial polypeptide isolated from sporulating bacilli from Russian soil. The organism which produces this antibiotic is of the *Bacillus brevis* type but is not identical in its growth properties with the strain employed by Dubos from which Tyrothricin was isolated. Comparison of the antibacterial action of Gramicidin-S with that of Tyrothricin has shown that the former is more effective in killing staphylococci whereas the latter is more active in killing streptococci and pneumococci.

Gramicidin is used topically in the treatment of streptococcal, staphylococcal and some types of pneumococcal infections. It is not inactivated by healthy or diseased tissue nor by saliva or pus. In order to preclude the development of penicillin resistant organisms, it is recommended to use gramicidin in place of penicillin in the treatment of local infections due to organisms susceptible to both penicillin and gramicidin.

This antibiotic is available at Schering Corporation under the following pharmaceutical forms:

Graminasin — An antibiotic nasal skin decongestant containing 0.005% gramicidin and 0.125% dl-desoxyephedrine hydrochloride.

Gramoderm — An antibiotic skin ointment containing 0.25 mgm. of gramicidin in each gm. of washable base. Do not use on wounds that are bleeding freely.

Gramozets — Troches containing 0.25 mgm. of Gramicidin and 5 mgm. of benzocaine, used for the relief of throat infections due to gram-positive organisms. Not more than 8 troches should be used per day.

PENICILLIN

Penicillin — Many products containing this antibiotic have been made available and those developed more recently are forms for inhalation therapy, buffered tablets for oral use, soluble buffered tablets, crystalline peni-

cillin-G procaine for aqueous injections and rapid repository forms. External preparations in the form of ointments, creams (not stable for long periods), pastilles are also available.

The use of fine penicillin dust for inhalation developed from the idea of using concentrated nebulized solutions of penicillin for the same purpose. The fine dry powder has advantages over solutions in that it keeps much better, occupies smaller bulk and the uniformity of dosage can be maintained. The local application of penicillin in this form is indicated for the treatment of infections of the upper or lower respiratory tract produced by organisms susceptible to the action of penicillin. Crystalline Penicillin-G Sodium is supplied in Sifter Cartridge containing 100,000 units of penicillin. These Cartridges are made to fit into a special powder inhaler to which a mouth piece is fitted when oral use is desired or a nose piece when nasal inhalation is required.

The Penicillin-G Potassium buffered tablets for oral use are available in 50,000 unit, 100,000 unit, 250,000 unit and 50,000 unit tablets in which an antacid is included. Since penicillin is rapidly inactivated by acids these tablets should be administered at a time when the acidity of the stomach is low, i.e. not less than 30 minutes before a meal or at least 1 1/2 hours after a meal. Patients who are known to have certain abnormalities causing slow emptying of the stomach should be given any available adjuvant treatment suitable to correct the abnormality so that absorption of penicillin will not be delayed or diminished. In order to maintain an effective blood level, about five times as much drug must be given orally as by injection and not more than three hours should elapse between successive oral doses. If the expected therapeutic effects do not materialize within 24 hours parenteral injections should be administered. In the treatment of acute infections, however, only parenteral injections should be administered.

Soluble buffered tablets containing 50,000 and 100,000 units of Crystalline

Penicillin-G Potassium are also available. These tablets are stable and do not require refrigeration. They are indicated for administration to infants, for addition to vasoconstrictor solutions, and for sublingual administration as a lozenge.

Procaine penicillin which was introduced to replace the Römansky formula (penicillin in oil with beeswax) is now used in many forms: suspended in oil, in oil with aluminum monostearate and in a form for aqueous suspension. The latest novelty is the combination of crystalline penicillin with procaine penicillin in a single product. This preparation as made by the Abbott Laboratories consists of the crystalline procaine salt of Penicillin-G and of buffered crystalline Penicillin-G Potassium combined with a small amount of suitable and harmless suspending and dispersing agents. Owing to the presence of soluble Penicillin-G Potassium, this product offers the advantage of producing a very high level of penicillin in the blood within 30 minutes of injection. In addition, there is a continued slow absorption of the slightly soluble procaine salt which maintains a prolonged penicillin blood level. Lederle Laboratories recently released a modified type of this product containing procaine penicillin and pectin coated crystalline penicillin with 1.5% aluminum monostearate in peanut oil. This pectin coating increased the speed of absorption of the soluble penicillin, while because of its insolub-

ility and because of the presence of aluminum monostearate, the release of procaine penicillin is delayed, so that effective blood levels are maintained for 72 hours.

Topical Penicillin Preparations. —

«Because of the increasing instances of sensitization to penicillin preparations for local application, the Council on Pharmacy and Chemistry of the Amer. Med. Association voted that penicillin preparations marketed as liquids, ointments, and ophthalmic ointments be considered unacceptable for inclusion in N.N.R., that all such preparations currently accepted be omitted from the 1951 edition of N.N.R., and that there be inserted in the appropriate N.N.R. monograph a warning concerning the danger of sensitivity following the topical application of penicillin products.

The status of penicillin inhalation therapy was discussed, and the Council voted to instruct its Secretary to investigate the occurrence of reactions of sensitivity associated with the use of penicillin in aerosols, inhalators, and similar means of administration».

Newest antibiotics include Actinomycin, Biocerin, Bacillomycin, Lupulon, Neomycin, Prodigiosin and Streptostasin. Of these neomycin has received a greater share of investigation. Results are very encouraging and it is hoped that this antibiotic will have a great use in the treatment of tuberculosis.

ANTIEPILEPTICS

A number of drugs have been developed for the treatment of epilepsy. The oldest of these are the bromides and potassium borotartarate. In 1912 the barbiturates were introduced and remained the most useful antiepileptics until the introduction of the hydantoins and oxazolindines in 1938 and in 1944 respectively. The barbiturates and hydantoins are effective in grand-mal while the oxazolindines, namely tridione and paradione, are effective against petit-mal. **Tridione** « Abott » (will be official in U.S.P. XIV under the name Trimethadione now given to it by the N.N.R.), chemically 3,5,5-trimethyloxazolidi-

ne-2,4-dione, occurs as a white, granular crystalline substance possessing a slight camphor-like odor, soluble in water and freely soluble in alcohol. The drug is available in the form of capsules, Dulcet tablets and solution.

Paramethadione (Paradione-Abbott) a homologue of trimethadione, has been made available recently. It differs only in the substitution of an ethyl for a methyl group on carbon 5. The drug is an oily liquid, slightly soluble in water, but is quite soluble in alcohol. It has the same indications as trimethadione with the advantage of having fewer and milder side effects.

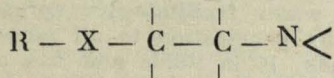
ANTIHISTAMINICS

Ever since it was demonstrated that histamine appears to play a major role in the allergic reaction much effort was expended towards the development of compounds which would effectively displace or replace histamine at the cell receptor. Naturally occurring amines and amino-acids histamine, histamine-azo-protein, histaminase, and various sympathomimetic agents were among the first products to be investigated. A more promising approach to the problem was initiated by the French led by Fourneau who developed certain effective synthetic compounds with which to antagonize histamine. This work provided the basis for the research that has led to the highly specific synthetic antihistaminic agents of today.

Fourneau compound 929-F «(2-Iso-propyl-5-methylphenoxy) — ethylenediamine» was the first compound discovered to have a specific antagonism to histamine. This compound was tried on animals and clinically. In both cases it was found to be toxic and its further use was discontinued.

Fourneau's second compound 1571-F (N-phenyl-N, N'-triethylethylenediamine) had the same fate as compound 929-F.

The recently developed antihistaminic agents can be classified as follows. The general structure may be represented by the formula shown below, in which X is nitrogen, oxy-



gen or carbon connecting the side chain to the nucleus. Where X is oxygen the products are classified as Dialkylaminoethoxy compounds, represented by compound F-929 and Benadryl. Where X is nitrogen the products are classified as Dialkylaminoethylamines, represented by, compound F-1571, Antergan, Pyri-

benzamine, Antistin, Neo-Antergan, Histadyl, Chlorothen, Phenergan, Thenylene, etc... Where X is carbon the products are classified as, Dialkylaminoalkyl compounds represented by Chlortrimeton, Trimeton, Thephorin, etc.

The antihistaminics named above are available in the form of tablets (Benadryl in capsules) for oral administration. A number is available now in elixir or syrup form intended particularly to children, e.g. Benadryl Elixir, Histadyl Syrup, Pyribenzamine HCl Elixir, Thephorin Syrup, Trimeton Maleate Elixir.

Antistin is available in ampuls for I.M. or I.V. injection in urgent cases.

Antihistaminics are also applied locally in the form of creams or water miscible ointment bases for treatment of certain skin affections. Those available include : Benadryl Cream, Pyribenzamine Cream and Ointment, Histadyl Cream, Thenylene HCl Cream, Thephorin Ointment, Trimeton Maleate Topical.

In addition to their use in the treatment of allergic conditions, it has been lately demonstrated that antihistaminics are valuable agents in « aborting » colds. This activity was first noticed in a patient being treated for an alimentary form of allergy. Surprisingly, a cold contracted while under allergy treatment was aborted.

To be effective in the treatment of colds these antihistaminics must be taken at the onset of the symptoms. They are useless in the treatment of a cold which has already developed. A cold is considered to be aborted or cured when all signs and symptoms have disappeared completely within 24 hours from the beginning of treatment and remained absent for at least forty eight hours after treatment was stopped. When symptoms persist beyond the first day, medication

may be continued for its palliative effect. Antipyretic-analgesic drugs such as acetylsalicylic acid, phenacetin, appear to provide synergistic activity when administered with antihistaminics and to materially enhance the effect of the treatment in later stages of coryza.

Many products containing potent antihistaminics with aspirin, phenacetin and caffeine have recently been marketed and are gaining wide use.

« The Council on Pharmacy and Chemistry at a recent meeting warned against the indiscriminate use of antihistaminic substances which are now being promoted for the prevention of colds and even for the treatment of those suffering from colds. The Council, while recognizing that data have been accumulated relative to such uses, is not convinced that they are sufficient to warrant the positive statements that are being made. The Council warns that instances have been reported of users of these drugs becoming drowsy and even falling asleep

while at work and, in occasional cases, while driving cars or operating machinery. A review of the present status of these products will be prepared so that physicians who prescribe the drugs may be aware of their possibilities. In the meantime the Council declares that experience with these substances is insufficient to permit knowledge of whether they are harmless when used over long periods of time. Furthermore, the amount taken in persistent colds may exceed what has been established as normally safe. (J. Am. Med. Assoc., **141**: 1059 (1949) ».

Dr. C. Zahra Neumann, of the Royal Malta University Hospital reported in the British Medical Journal, that 40 babies suffering from infant diarrhea were cured by the injection of a combination of Benadryl and Sulfamezathine. This treatment was based on Dr. Neumann's belief that the symptoms of the disease can be explained at least in part, as a manifestation of histamine intoxication.

LOCAL ANTI-INFECTIVES

Furacin (Nitrofurazone N.N.R.) is an antibacterial product which was prepared at the Eaton Laboratories. Chemically it is 5-nitro-2-furaldehyde semi-carbazone. It is a lemon-yellow crystalline compound, slightly soluble in water (1 : 4200), in alcohol (1 : 590), in propylene glycol (1 : 300), and is most soluble in carbowax (1 : 100). Furacin is heat stable, even at the autoclaving temperature of 120°C. but decomposes above 227°C. It is synthesized from the pentose sugars of oat hulls and bran. Furacin has a wide antibacterial spectrum in vitro, including many gram-negative and gram-positive bacteria. It is not fungistatic. It is stable and maintains its antibacterial powers in the presence of wound exudates and bacterial debris. It has been found to be effective in the prophylaxis and treatment of

wound and surface infections. It is available in the following forms :

Furacin Soluble dressing containing 0.2% of the drug dissolved in a bland, water soluble, water washable base consisting of Carbowax (75%) and propylene glycol (25%). It is of petrolatum consistency at room temperature and liquefies at body temperature. This latter property and its miscibility with water facilitate its spreading and its penetration to all parts of wounds. It is stable and has a pH of 5 to 7.

Furacin is also available in solution for topical use. It contains 0.2% of the drug in a mixture consisting of Carbowax 65% and water (34.5%) to which is added 0.3% of a wetting agent (polyethylene glycol of mono-iso-octyl phenyl ether).

Furacin Ear Solution contains 0.2% of Furacin incorporated in

an anhydrous, water-soluble vehicle composed of polyethylene glycol (350) which does not cake and hinder drainage. It is stable but should not be exposed to strong light which can cause discoloration.

Furacin in combination with benzyl-benzoate, DDT and ethylamino-benzoate is used in the treatment of scabies and pediculosis. This type of product is marketed by Eaton Laboratories in the form of a liquid and ointment under the patented name Paracin.

Caprylic Acid and its Compounds — Caprylic acid is a saturated fatty acid having the chemical formula $\text{CH}_3(\text{CH}_2)_6\text{COOH}$. Two of its salts have been recently accepted by the American Medical Association, Council on Pharmacy and Chemistry, for the treatment of certain fungus infections. A mixture of the sodium and zinc salts in the proportion of 2 : 1 has been admitted to the N.N.R. under the name Caprylic Compound. This product is marketed by R.J. Strassburgh Company under the code name Naprylate. An ointment and a dusting powder are available for topical application on the skin after thorough cleansing of the affected part. They are used for the prevention and treatment of dermatophytosis pedis and for the control of certain other superficial fungus infections of the skin and accessible mucous membrane. The usual method of application is to use the powder during the day and the ointment during the night. The powder may also be dusted into the shoes and stockings.

Caprylic Compound is also used in the form of vaginal suppositories in the treatment of monilia vulvovaginitis.

Propionate-Caprylate mixture N.N.R. is another product combining the fungicidal activity of propionates and caprylates and is es-

pecially recommended for the treatment of dermatophytosis of the feet (athlete's foot), hands and groin. The active ingredients of such mixtures are chosen from the following : caprylic acid, propionic acid, sodium propionate, calcium propionate, zinc caprylate and zinc propionate.

Wyeth Incorp. supply this product in the form of an ointment, powder and solution.

Undecylenic Acid and Zinc Undecylenate have been known to possess fungicidal activity when applied topically. The oral administration of undecylenic acid for the treatment of certain skin diseases is a recent achievement.

Undecylenic acid is a straight chain, 11 carbon atom, terminally unsaturated fatty acid. It is a liquid at room temperature and is soluble in water. Different varieties of it are available and the specially purified undecylenic acid certified for oral use should not be commuted with the quality suitable only for local application.

Sevinon-Schering capsules containing 0.44 Gm. Undecylenic acid are used in the treatment of psoriasis and neurodermatitis.

Hexachlorophene (G-11) is a new synthetic phenol compound chemically known as 2,2' dihydroxy-3, 5, 6-3, 5', 6' hexachloro-diphenyl methane. Several preparations in the form of liquid and bar soaps containing G-11 have been made. One of the preparations, available at Winthrop-Stearns Inc., is pHisoderm with Hexachlorophene 3%. pHisoderm is a soapless, frothy detergent whose pH is adjusted to 5.5 which is identical with that of the skin.

pHisoderm with 3% Hexachlorophene is an anti-infective detergent used topically as a pre-operative scrub for both the surgeon's hands and the operation area.

ANTIMALARIALS

Eversince 1891 when Guttman and Ehrlich introduced methylene blue as an antimalarial, thousands of compounds have been synthesized and tested in an effort to produce an effective, cheaper and readily available antimalarial. As a result of this vast research at least six chemical compounds have been found effective in the treatment of malaria. All of these have been developed during World War II and subsequent years, except quinacrine and pamaquine which were introduced after World War I in 1924 and 1930 respectively. In addition to the already well known products Chloroquine, Chlorguanide (Paludrine), Quinacrine, Pamaquine, the following have been recently introduced:

Oxychloroquine, or SN 8137, chemically is 7-chloro-4-(3-diethylamino-2-hydroxy-propylamino) quinoline. This product is not commercially available. Experimental studies of it indicate that it has no advantage over chloroquine. Although it is less toxic in man, it is at the same time less active as an antimalarial.

Sontochin — SN 6911; 3038 R.P.; Sontoquine; Santoquine; Nivaquine (except Nivaquine B which is a salt of Chloroquine). Chemically it is 7-chloro-4-(4-diethylamino-1-methyl-butyl-amino)-3-methyl quinoline. This

compound has been used by French investigators in various salts of which Nivaquine C, the dihydrochloride, is preferred. In the United States the disulfate is used. It is effective against asexual erythrocytic parasites and alleviates acute attacks of malaria. It is administered orally and has been tried parenterally.

Pentaquine — SN 13, 276, (to be admitted to the U.S.P. XIV) is used in the form of its phosphate containing 75 % of base. Chemically it is a quinoline derivative, 6-methoxy-8-(5-isopropylaminoamylamino)-quinoline. Administered orally in doses of 60 mgm. of base per day (10 mgm. every 8 hours). It is given concurrently with quinine sulfate 2 gms. per day (0.65 gm. three times daily) for 14 days. It is not used in suppressive treatment. It has activity against the asexual erythrocytic parasites of *P. vivax*, but is especially useful in combination with quinine, to lower the relapse rate of vivax malaria.

Isopentaquine SN 13,274, a close analogue of pentaquine, is still in the experimental stage. Experimental results so far indicate that this compound is equal to pentaquine in its activity against relapses of experimental vivax infections and is somewhat less toxic.

ANTIPARKINSONIAN DRUGS, MUSCLE RELAXANTS and CURARIZIG AGENTS

Parpanit — is a relatively new synthetic drug, produced by J. R. Geigy, Switzerland, for the treatment of Parkinsonism. Chemically it is the hydrochloride of 1-Phenyl-cyclo-pentane-1-carboxylic acid diethyl-amino ester. It is given orally in gradually increased doses. Parpanit has desirable relaxing effects similar to belladonna alkaloids. It is available in tablets of 0.05 gm. with division into four and in tablets

of 0.00625 gm.

Diparcol — (2987 R.P.) is diethylamino-2'-ethyl-N-dibenzo-parathiazine discovered by the Rhône-Poulenc-Spécia Laboratories, for the treatment of Parkinsonism. It is given orally in gradually increasing doses. Parenteral administration is rarely indicated, but may be employed when a rapid action is desired. In such cases half to one 0.25 gm. ampul should be given by in-

intramuscular or slow intravenous injection.

Artane — Trihexyphenidyl; 3-(1-piperidyl)-1-phenyl-1-cyclohexyl-1-propanol hydrochloride. Manufactured and marketed by Lederle, it is given orally against Parkinsonism, in gradually increasing doses. It is available in tablets of 2 and 5 mg.

Tolserol (Squibb), Oranixon (Organon) Lissephen (Abbott), known in England as «Myanesin». It is a synthetic chemical compound (3-orthotoloxyl-1,2-propanediol) having muscle-relaxing properties. It is administered orally for the alleviation of symptoms in certain spastic and neuromuscular disorders. The adult daily dose is one gm. 3 to 5 times daily. Myanesin is supplied in a 10% solution suitable for use with general anesthetics to potentiate muscular relaxation. Five to 10 cc. are injected intravenously, 1 or 2 minutes before relaxation is required, and the effect of the dose lasts for 20-30 minutes.

Flaxedil — (3697 R.P.) Flexedil is an organic synthetic compound which has properties similar to those of curare and it has an advantage of having a larger margin of safety. Its solutions

are stable and can be stored at room temperature without decomposition. It is chemically compatible with solutions of barbiturates intended for intravenous anesthesia. Used with general anesthetics to produce muscular relaxation thus reducing the total amount of general anesthetic needed.

Flaxedil is supplied by Specia in 2 cc. ampuls containing 0.04 gm. of the drug.

d-Tubocurarine Chloride N.N.R. — is the crystalline chloride of a quaternary base alkaloid obtainable from the bark and stems of *Chondodendron tomentosum* and related species. It is standardized biologically, and the strength of its preparations is expressed by weight, since it does not contain the impurities ordinarily accompanying the active principle in the usual curare preparations. d-Tubocurarine Chloride is used to reduce the tone or contractile power of skeletal muscle in anesthesia, shock therapy, and in certain spastic states. It is also used for the diagnosis of myasthenia gravis. It is supplied by Abbott Laboratories in vials of 10 cc. each cc. containing 3 mg. of d-tubocurarine pentahydrate.

BLOOD PLASMA SUBSTITUTE

Subtosan (Solution 143 R.P.). Subtosan is a colloidal solution for intravenous injection, composed of a 3.5% solution of polyvinyl-pyrrolidone, a synthetic organic derivative of high molecular weight, together with various mineral salts. It will keep almost indefinitely. This product is supplied by Specia in sterilized 500 cc. bottles. The solution should be warmed to body temperature before injection. The manufacturers claim that Subtosan is well tolerated by the tissues and does not involve any risk of anaphylactic reaction. It does not interfere with hepatic or renal functions or in any way weaken systemic protective reactions.

Dextran is a new plasma substi-

tute developed in Sweden. This substance having a molecular weight conforming to that of an albumin is made up of glucose molecules which are readily metabolized by the body. It is supplied in a concentration of 6% dissolved in a 0.9% sodium chloride solution. This solution has a specific gravity somewhat higher than that of human plasma and its viscosity lies between that of blood and plasma. It is being used in Sweden to a large extent in emergency cases. Very good results have been obtained both in the prevention and treatment of shock and it is stated to be as good as plasma in shock from burns.

SULFOMANIDES

Cantrisin — is a new sulfonamide formerly known as NU-445. Chemically it is 3,4-dimethyl-5-sulfanilamido-isoxazole. It is characterized by a comparatively high solubility even in neutral and slightly acid body fluids. Because of this property the simultaneous use of alkali therapy is obviated and it is unlikely that this compound causes crystalluria, or deposition of crystals in the urinary tract. It is especially effective in urinary infections as well as for systemic infections due to streptococci, staphylococci, pneumococci and meningococci. This compound is marketed by Hoffman-La Roche in the form of tablets, syrup and ampuls. It is administered in an initial dose of 4 to 6 gm. followed by a dose of 1 to 2 gm. every four hours until the temperature has been normal for three to seven days.

Fontamide (Sulfonylthiourea 2255 R.P.) — is an antibacterial agent particularly effective against staphylococci. It is soluble in water and concentrated neutral solutions of it can be prepared. Chemically it is p-amino-benzene-sulfonyl Thiourea. This compound is marketed by Specia under the following forms :

1) Tablets for oral administration ; 2) 33% neutral solution in 3 cc. ampuls ; 3) 33% solution in 10 cc. ampuls for topical application ; pleural irrigation (10-20 cc. of solution diluted with 500 cc. of sterilized water), intra-articular injection, dressings. 4) 33% solution for ophthalmological and otorhino-laryngological use. It is administered as an eye wash (conjunctivitis, ophthalmia neonatorum, pre-operative prophylaxis), in irrigations and in subconjunctival injections (1/4 to 1 cc. per injection). It is claimed by the manufacturers that subconjunctival injections are very effective in ulcerative keratitis and in trachoma.

Sulfamylon (Winthrop) — Mafanil - P-amino-methylbenzene sulfonamide. This sulfonamide is of German origin and is said to have been extensively used by the German army for local treatment of wounds. Samples of it were captured by the U.S.A. army from the Germans during the North African war. The product is now commercially available from the U.S.A. It is active in the presence of pus and is not antagonized by p-aminobenzoic acid. It is effective against infections caused by the « gas gangrene » group of anaerobic bacteria, as well as against a wide range of other gram-negative and gram-positive bacteria. It is marketed by Winthrop-Stearns in the following forms :

1) 1% buffered aqueous solution of Sulfamylon Hydrochloride with aromatics. It is administered in the form of instillation, irrigation, atomizer spray, or wet dressings in the treatment of upper respiratory infections.

2) Combination package of Sulfamylon Hydrochloride 5% solution, 100 cc. and Streptomycin Sulfate 20 mgm. It is applied topically in the treatment and prevention of wound infections.

Sulfonamide Mixture — The combination of equal parts of sulfamerazine, sulfadiazine, and sulfamethazine (or sulfadiazine, sulfamerazine and sulfacetamide) has been shown, to provide approximately the same therapeutic activity that is obtained when each of the drugs is administered singly in the recommendable doses. Clinical trials have indicated that triple mixtures of sulfonamides reduce the incidence of renal crystalluria to a greater extent than the dual mixture. The simultaneous admi

nistration of a suitable alkalinizing agent to the triple mixture aids further in obviating the formation of sulfonamide crystals in the urine.

Half a gram tablets are available containing 0.166 gm. of each of the three sulfonamides.

MISCELLANEOUS

Nitrogen Mustard Hydrochloride is di-(2-chloroethyl) methyl amine hydrochloride. It is indicated in cases of Hodgkin's disease which have become resistant to radiation therapy, producing a remission of symptoms, and rendering the case amenable to further X-Ray treatment. This product is available at Boots Drug Company in vials containing 10 mg. each thus permitting the preparation of fresh solutions by adding 10 cc. of a 0.9% sterile solution of sodium chloride to every 10 mg. of drug. Injections are given intravenously in doses of 0.1 mg./Kg. body weight for a period of 3 to 6 days. Six to eight weeks should be allowed between courses of injections. Extravasation should be avoided.

Isopropyl-nor Adrenaline is dl-1-(3', 4'-dihydroxyphenyl)-2-isopropyl-aminoethanol, the N-isopropyl homologue of adrenaline. Used in the form of its hydrochloride or sulfate as a bronchodilator and is indicated in the treatment of asthmatic conditions. It has no significant side effect on the blood pressure and central nervous system, but a certain degree of tachycardia has been found to occur, depending upon the rate of absorption. This product may be safely given to children.

It is administered orally, sublingually, subcutaneously and in the form of inhalation.

This product is available at Boots Drug Co. and is also supplied by Winthrop under the code name Isuprel.

Abadol (Aminothiazol ; 2921 R.P.). It has an inhibitory action on the synthesis of thyroxin. Abadol is a Specia product presented in

0.10 gm. tablets. It must only be administered orally, and should be used under the supervision of a physician.

Etamon Chloride is chemically, tetraethyl ammonium chloride. It is indicated in the treatment of thromboangitis obliterans (an inflammatory and obliterative disease of the blood vessels of the extremities, more frequently the lower extremities, occurring chiefly in young men and leading to ischemia of the tissues and gangrene), peripheral arteriosclerosis obliterans, thrombophlebitis, and functional vascular disorders. It is supplied by P.D. & Co. in rubber capped vials containing 20 cc. of a 10% aqueous solution. Injections are given intravenously in doses of 1 to 5 ml., but not exceeding 7 mg./Kg. of body weight, or intramuscularly, in a dose of 10 to 12 ml. but not exceeding 20 mg./Kg. of body weight.

Vitamin B12. — The first successful experiments for treating pernicious anemia with liver in human beings was done by Minot & Murphy twenty-four years ago. Since that date until the present several refinements of the original prescription — 1/4 kilo of raw or cooked liver a day — have been made. The latest addition to the list of substances used in place of fresh liver in the treatment of pernicious anemia is Vitamin B12, now known to contain nitrogen, phosphorous and cobalt in the molecule and is administered hypodermically in doses calculated in micrograms. This vitamin is isolated from liver in small red needle-like crystals. Aqueous solutions of it are stable to autoclaving for 15 minutes at 121°C. It is

also known as
"Alcedrine"

inactivated at room temperature by 0.015 N sodium hydroxide to the extent of 20% in forty minutes, 45% in six hours, 90% in 23 hours, and 95% in 95 hours ; and by 0.01 N hydrochloric acid to the extent of 15% in 3 hours, 75% in 23 hours, and 89% in 95 hours.

Favourable results in the treatment of uncomplicated cases of pernicious anemia may be obtained by the intramuscular administration of 10 to 15 mi-

crograms once or twice a week until symptoms have diminished. Larger doses may be required in some patients. For maintenance, a dose of 5 micrograms once a week is usually effective.

In severe cases, or those complicated with neurologic symptoms, 25 micrograms may be given intramuscularly once or twice a week. For maintenance, 5 micrograms injected intramuscularly 2 or 3 times per week may be adequate.

MOTION SICKNESS

Dramamine — Chemically, Dramamine is beta-dimethylaminoethyl benzohydril ether 8-chlorotheophyllinate. When experimenting with it as an antihistaminic, it was accidentally discovered that in addition to relieving a pregnant woman from the urticaria, Dramamine also relieved her from carsickness of which she had been suffering all her life. This discovery stimulated further investigation of Dramamine's effect on seasickness. Results obtained from trials on the Army and Navy of the U.S.A. indicate that the drug prevents seasickness if taken at sailing time and also relieves seasickness after the symp-

toms had developed. This product is marketed by G.D. Searle & Co. in the form of tablets containing 100 mg. each. One tablet is given before each meal and before retiring.

Mosidal — is ethyl-beta-methylallylthiobarbituric acid introduced by Abbott Laboratories for the treatment of motion sickness in human beings. It is supplied in 0.15 gm. tablets. One tablet two to three times daily are given, preferably beginning 24 hours before travelling. The drug should not be taken for a period longer than 5 days at a time. Contraindicated in cases of impaired liver function.

OINTMENT BASES

Experiments made during the last few years indicate that the therapeutic activity of a substance used externally in an ointment form, depends very much on the type of base used in preparing such an ointment. Because of this new concept a number of ointment bases have been developed during the last decade or two to give the dermatologist a wider choice of ointments which he could use in the treatment of individual cases. Space does not permit the discussion of these ointment bases in detail. Some of the newly introduced bases will be considered very briefly.

Hydrogenated oils and Hydrogenated sulfated oils : Many unsaturated

oils (cotton seed oil, corn oil, castor oil, peanut oil) can be converted by hydrogenation under controlled conditions, into white semi-solid lard like fats, or into hard almost brittle waxes. The latter consistency is an indication of complete hydrogenation and such wax like products are not satisfactory for ointment base use unless mixed with a base of a much softer consistency. These hydrogenated oils (crisco, an edible fat, is an example) are much more stable than the natural fats and do not become rancid, but, like them, are insoluble in water.

Vegetable oils containing an unsaturated linkage and a hydroxyl group are capable of being hydrogenated

and sulfated. Hydroxystearin sulfate N.F. VIII for example is prepared from castor oil. The oil is hydrogenated until it has an iodine value of less than 5, signifying that the unsaturated linkages of ricinolein have been practically completely saturated and the oil converted into hydroxystearin (Hydrogenated Castor oil). The product is then treated with sulfuric acid until a large proportion of the hydroxyl groups has been sulfated. After sulfation, the excess of sulfuric acid is neutralized with alkali and the hydroxystearin sulfate is separated and purified. This product has a satisfactory consistency, is relatively stable and its miscibility with aqueous liquids is sufficient for all pharmaceutical as well as for most therapeutic needs. It can be used as an ointment base either alone or in combination with other substances. It is strongly hydrophilic and is compatible with nearly all dermatological medicaments and with other ointment bases.

Wool Alcohols — B.P. 1948 is a mixture of cholesterol and other alcohols obtained by the saponification of the grease from sheep's wool and separation of the fraction containing cholesterol and other alcohols. The product is a golden brown wax like solid, containing not less than 28% of cholesterol. It forms water in oil emulsified ointment bases. **Ointment of Wool Alcohols B.P.**, used as a base for penicillin ointment, is made of 6 parts of wool alcohols, with 94 parts of a mixture of hard paraffin, soft paraffin and liquid paraffin.

This is an anhydrous hydrophilic ointment which can take a high percentage of water, thus when it is mixed with an equal part of water it forms the Hydrous Ointment B.P. which is used as an ointment base for various medicaments.

Cetyl Alcohol obtained from spermaceti by saponification occurs as unctuous, white flakes, granules, cubes or castings. Though not itself an emulsifying agent, it is an emulsifying aid whose stabilizing property appears

to be due to its hydrating capacity. It may be used in either oil-in-water or water-in-oil emulsified ointment bases. Associated with a surface active agent, cetyl alcohol is used in the formulation of « washable » ointment bases. Example : Beeler Formula (Remington's Practice of Pharmacy — 9th Ed. p. 289). Cetyl Alcohol 15.0, White Wax 1., Propylene Glycol 10., S.d. Lauryl sulfate 2., Water 72.

Stearly Alcohol is a mixture of solid alcohols consisting chiefly of stearyl alcohol, prepared from stearic acid by catalytic hydrogenation. It is not sufficient by itself for producing a stable product but when used with an efficient wetting agent such as sodium lauryl sulfate, stable oil-in-water creams are obtained. It has the same function as cetyl alcohol, and may be used interchangeably with it ; the former, however, produces a somewhat firmer preparation. Example : Hydrophilic Ointment U. S. P. XIII.

Stearly alcohol	250 Gm.
Sod. Lauryl sulfate (Wetting agent)	10 Gm.
Methyl Paraben (Preservative)	0.15 Gm.
Propyl Paraben (Preservative)	0.10 Gm.
Glycerin	120 Gm.
Water	370 cc.

Cetostearyl Alcohol and Emulsifying Wax, B.P. 1948 : cetostearyl alcohol is a mixture of aliphatic alcohols chiefly stearyl and cetyl alcohols. It is supplied in white, or cream coloured unctuous masses, or in almost white flakes or granules which should not melt below 43°C. Ninety parts of this product combined with ten parts of sodium lauryl sulfate give a product known as **Emulsifying Wax B.P. 1948** which is said to have emulsifying properties similar to those of Lanette Wax SX, a British patented product used in the formulation of many medicinal and cosmetic creams and lotions.

Emulsifying wax is a nearly white, wax-like solid. It is an emulgent that forms oil-in-water emulsions and is

used in the formulation of ointment bases which can be easily washed from the skin with water. **Emulsifying Ointment B.P. 1948** is a mixture of 30 parts of emulsifying wax, 50 parts of soft paraffin (white petrolatum) and 20 parts of liquid paraffin. Hydrous Emulsifying Ointment is an emulsion containing 30 parts of Emulsifying Ointment and 70 parts of water containing a small proportion of chlorocresol. This is used as a water-soluble base for various medicaments.

Esters of Polyhydric Alcohols :

This group comprises the fatty acid esters of the polyhydroxy alcohols from glycol to mannitol. The only polyhydric alcohol-fatty acid esters occurring naturally are the triglycerides of various animal, vegetable, and fish oils and fats. All of the others are prepared synthetically. The synthetic compounds available commercially are not single chemical compounds but are mixtures of the mono-, di- and in some cases the tri-fatty acid esters with perhaps a small percentage of free fatty acids. These compounds are poor emulsifying agents. Therefore, in order to give them emulsifying properties, small quantities of wetting agents or other surface active agents are added. These mixtures do not possess the necessary properties of an ointment base. They do not melt or soften at body temperature. They however have good emulsifying properties and therefore they are useful in preparing ointment bases of the emulsified type. The type of emulsion formed is generally determined by the ratio of the free hydroxy groups to those esterified and the free fatty acids. Glycerylmonostearate for example will make an o/w emulsion while glyceryl tristearate will make w/o emulsion. Sorbitol distearate is used to prepare o/w emulsions and sorbitol tetrastearate to prepare w/o emulsions. The percent of free fatty acid can also

be a determining factor, for example diglycol oleate (oleic acid ester of diethylene glycol) is available as an emulsifying agent with a fairly high fatty acid content for w/o emulsions and with a low free fatty acid content for o/w emulsions.

Carbowax Compounds — are solid poly ethylene glycol compounds having molecular weight above 1000. Structurally, they have the general formula $\text{HO. CH}_2. (\text{CH}_2 \text{ OCH}_2)_x. \text{CH}_2. \text{OH}$. They are water soluble, non volatile, unctuous compounds. They do not hydrolyse or deteriorate and they will not get moldy. At present a special grade of each type designated by the letter « W » followed by the molecular weight number is marketed by carbide and Carbon Chemicals Corporation, for pharmaceutical and cosmetic use. Examples :

Carbowax « W » 1500 — is a bland, water-soluble, non-volatile solid, having the consistency of a low melting petrolatum, melting point 30-42°C. and the pH of a 5% aqueous solution is about 4.6.

Carbowax « W » 1540 — is a white waxy solid which melts at 40 to 45°C. It is soluble to form about a 70% solution in water. The pH of a 5% solution is about 6.5.

Carbowax « W » 4000 — is a bland, hard, white, waxy solid, which melts at 54-57°C. It is soluble to form about a 60% solution in water. The pH of a 5% solution is about 6.35.

Water-Soluble Ointment Base

Carbowax 4000 W	40 Gm.
Carbowax 1500 W	30 Gm.
Polyethylene Glycol	30 Gm.

Heat ingredients together on a water bath until melted, stir until congealed. (Remington's Practice of Pharmacy — 9th Edition, p. 290).



THE PAULYS

from their letters

**The S/S Exochorda,
July 20, 1949.**

... About thirty pharmacy students and staff stayed at the dock in Beirut until the boat backed out into the sea and started on its path in front of the University. We could see their waving handkerchiefs almost until we picked up the first flashes of the mirrors from the various houses on the campus. From the brilliance of the flashes we imagined that some of you must have been using large dresser mirrors. It certainly was a send-off that we shall never forget...

Albany, November 6, 1949.

... I reported for work at the Institute on Aug. 1, but didn't have to start doing anything until Aug. 15, and went to visit the family every week-end, while they were in Mass. It is taking me quite a good deal of time to get acquainted with all the intricacies of the pharmaceutical research work that is going on in the institute, besides trying to get an overall picture of the Sterling Interests that cover 58 companies with 118 plants scattered throughout the world. Most of the time I am right in the lab, where I worked three summers ago and have attempted a few formulations for new chemical products that have gone through «the works» as far as value, therapeutics,

toxicity, and other tests show. After we put them up in suitable form, and prove their stability, they then go out for clinical testing. In all, it takes about 3 to 5 years for a new drug to «be born», so don't be impatient about my not showing any results so far...

Albany, November 20, 1949.

... Christmas is still five weeks away, but this Sunday, with its overcast sky outside and with a crackling hearth fire inside, has such a pre-Christmasy atmosphere that we would like to start our letter which is to bring all of you our most sincere and best Christmas wishes.

Having pulled up stakes in Beirut in order to be with our children and to establish a home for them in the U.S.A. we arrived in Boston with five «dependents», and 46 pieces of luggage when the thermometer stood at 103 F. We could not help but feel that America was doing its utmost to make us, coming from a subtropical climate, feel perfectly at home... You cannot imagine what a wonderful feeling it was to have old friends welcoming us at the beginning of our new life... Thanks to the courtesy and speed of the customs officials, we made the noon bus to Mountain Rest where we had found asylum for the summer weeks. Mountain Rest is a lovely place

in the Berkshires, peaceful and friendly. With the family comfortably settled, we left for Albany the following week to hunt for a home. The Dennises expected us, both looking very fit. They had made arrangements with realty agents to take us house-hunting. For two weeks, from morning to evening, we looked at houses; old and new, large and small, until we were ready to live in a barn, had one been offered, as everything seemed so expensive and unsuitable. When we had almost given up hope, we saw the house of our dreams and bought it, for we found that paying interest was cheaper than paying rent. It was perfect in every respect except for the price and the taxes...

On september first we moved into our new home and, with the help of slave labor in the form of our children, managed to be reasonably settled within two weeks. Everything from Beirut arrived in perfect condition. As we had also sent for some of mother's lovely old furniture from Walla Walla our house began to look like home very soon. It is a Spanish type stucco house with an attractive garden, large enough for all of us and any number of guests. This is a standing invitation to you all: Ahla-u-sahla!...

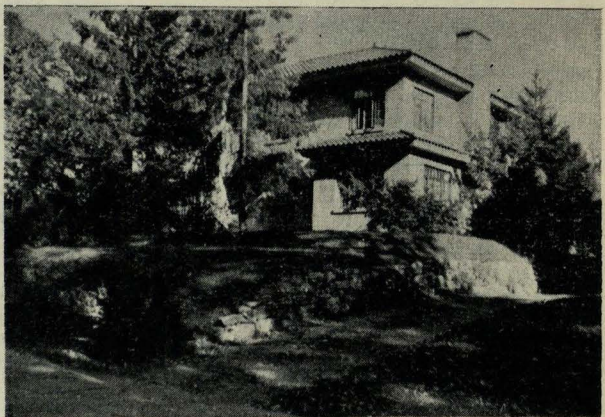
Ralph left for Whitman College around the middle of September and Lore and Heidel for Oakwood School at Poughkeepsie a few days later. We drove the girls to school and found

the glorious Autumn coloring of the trees almost as beautiful to behold as the view from the A.U.B. campus over the Mediterranean and the Mountains... one afternoon we had a visit from Krikor Seraydarian who was on a visit to relatives in Albany. The Berberians invited all of us to a grand lahem-mishue supper in their garden shortly after we arrived. To all of us this made Beirut seem quite near.

Last week we had an all too short visit from Mr. and Mrs. Archie Crawford, our first over-night guests. The first thing Mary said when she entered our new home was, «Why, it looks just like home and like Beirut». And it does. Beirut is everywhere, on the floors, the tables, the window sills, and the walls. Everything we ever collected, together with the lovely presents given to us make it home to us. We try to look back to our happy years at the A.U.B., not with homesick longing, but rather with the feeling that we have established a second home for you to come to on your visits, knowing you will find the same atmosphere and welcome you did when you dropped in on us at the Mishalenys.

Dr. Pauly likes his work and is as busy as ever. Instead of correcting papers and preparing lectures he now works on research problems and has to write up reports. He leaves at 7:30 in the morning and does not get back until 5:30, but his Saturdays and Sundays are free. Ralph is very happy at Whit-

147 South Pine Avenue
Albany ¹²²⁰ N. Y.



Albany, April 16, 1950

man; the only cloud on his head and our horizon is the fact that he cannot come home for Christmas because of the distance. Lore and Heidel have made an excellent start at Oakwood and Hansi, who goes to a public school just six blocks away; has also adjusted well. He longs for the A.C.S., but rejoices in not having much homework — to our regret — and spends every free minute with the radio, listening to Superman, Captain Midnight, and countless mystery serials. How fortunate you are not to be subjected to the terrible commercial advertising.

Don't forget us and remember that with our Christmas wishes we send you our loving and grateful thoughts...

Albany, January 15, 1950

... My work here is going along slowly, mostly working out formulations for new products — a very interesting phase of pharmacy work. We spent most of the last two weeks moving to the newly completed building which has a most impressive commanding position overlooking Rensselaer, and the Hudson River with Albany on the other side. It is a very fine building and is equipped to permit all types of research. Drugs that we only know by a number now may take as long as five years before you will see them on the market, but in the meantime they will have gone through all the tests and qualifications to make them good products...

... Would you please make it known to the Cabinet or the Society that I would be most grateful to receive used stamps of the Middle Eastern Countries for Ralph's and Hansie's albums as traders. In exchange we can send them stamps of this country or of Germany if they are interested or could put them in touch with amateur collectors for exchange purposes; if they so desire. They have a stamp club at Hansie's school where all the kids are most eager to exchange stamps...

Now that we have experienced a whole Winter in Albany we can begin to describe something of life in the North Temperate Zone.

With the crocuses, lillies-of-the-valley, and tulips showing their leaves and buds through the thawed earth, even though there are still spots of unmelted snow hidden in shady spaces of the lawn, one begins to feel that Spring is finally approaching. After a fairly mild Winter with 12 inches of snow on the ground during the first half of December, a long snowless stretch of six weeks where the temperature ranged between 15°C. above to 15°C. below zero, and then another six weeks with plenty of snow, sometimes 15 inches of it on the ground at one time, together with cold temperatures and cold winds, we again had a touch of lovely weather during the first 10 days of April with the temperature even rising as high as 20°C. Two days ago, however, after a lovely sunny day it started to snow soft heavy flakes in the evening, continued all night, and by the next morning we had five inches covering everything so that it took us back in thought and scene to mid-winter. One thing was different, though, for the ground was not frozen. So when the sun came out and warmed up the air a bit the snow disappeared in the ground by mid-afternoon without leaving a trace behind. In going to work in the morning I had to have chains on the tires of the car. On my return in the evening all the streets were dry and one felt again in the midst of a lovely Spring day. I had never experienced anything like it before.

It is difficult to describe some of the lovely scenes that Father Winter is capable of producing with his frosty touch. One, common to this part of the world, is what is called an ice storm. It usually begins with rain. As it continues to rain the air becomes cooler and cooler until the rain begins to freeze and pile up on the branches, twigs, and needles of the trees, often

encasing them in a solid coating of ice 1 centimeter thick. It is not a storm in the sense that there has been any accompanying wind, lightning, or thunder. Usually it takes place in a very gentle way. But the havoc wrought is often worse than that produced by a heavy wind storm, for electric and telephone wires become too heavy for their span and break ; branches of trees often fall with their load and block roads, the highways become exceedingly slippery, causing numerous accidents, etc. Yet it is a beautiful sight to behold a beautiful fir, elm, or willow entirely encrusted in ice, especially when reflected sunlight makes it glisten with a thousand twinkling lights of all the colors of the rainbow.

It also has afforded us a great deal of pleasure this Winter to sit in our glass enclosed sun-room which overlooks the garden and watch the gray tree-squirrels hop over snow to a spot near our windows where we have thrown out some nuts, bread, or other tid-bit for them. They sit on their hind legs, holding the morsel of food in their front paws and turn it continuously around while finding a new

corner on which to gnaw. One day we even had a visit of three pheasants. They walked all around our back yard for half an hour picking up the crumbs left by the squirrels. During the summer we often find rabbits in our garden in the evenings. They have made their persence known already by eating off all the violet leaves at a time when the snow covered the grass and they had no other food. Now, with the coming of spring we have the garden trees full of red breast robbins, finches, warblers, twittering starlets and many other varieties of birds that will help us to keep the bugs off the growing plants.

All is certainly a great change from the warm out-of-doors of Beirut. We will always miss the blue Mediterranean, the majestic Lebanons, and our many friends there, but, after a year here, we find we like the location very much and are now looking forward to the late Spring and Summer when we hope to see many flowers and blooms as fruits of the industrious labors of my wife and her mother who have been working in the garden on every sunny day.

Opposite are two views of the reception held in honor of Dr. Pauly in West Hall on June 14, 1949. His Excellency Dr. Elias Khouri, the Minister of Health, awards Dr. Pauly the medal of "Chevalier de l'Ordre National du Cèdre".

(Cuts by courtesy of the Al-Kulliyah Magazine)



THE ROYAL BOTANICAL GARDENS

Ten miles West of London along the bank of the River Thames lies the world's most celebrated Botanical Gardens. The Kew Botanical Gardens, as they are commonly known, are the world's largest and most valuable, comprising an area of 288 acres. They have stood in that same spot since they were first established by the order of George III in 1760.

Nowhere on earth is found a more beautiful spot, where you can find such varieties of exotic plant specimens as the bird-of-paradise, rhododendrons, etc..., coming from every corner of the world. Sir E.J. Salisbury, the director of the gardens, estimates that the herbarium contains some 6 million sheets of pressed, fumigated, identified plant specimens. Some of the specimens at Kew are the personal collections of botanists, travelers, explorers and pioneers. The remainder is collected by special expeditions sent every few years. Every plant is given a name, classified, described, pressed and fumigated against attack by moth and insects — duplicates of each being kept for replacement in case of loss. These specimens are supplemented by special collections preserved in alcohol, by watercolor drawings and by fruits and seeds. This classification system is so well mastered and is so accurate, that once Kew has given a name for a plant, this name is taken as authoritative. In addition to the herbarium, the gardens themselves contain some 45,000 living plant specimens properly labelled and are therefore very valuable for study and comparison. The gardens are of infinite interest to expert botanists and horticulturists who come from all over England and the Continent to watch and study the rare specimens. The gardens are also open to the public who visits them at an average of 2,000,000 a year.

For all that kind of work, Kew has a library which contains some 50,000 volumes on Botany, Taxonomy, etc...

Some of the books are invaluable and are not to be found anywhere else. From Kew comes exhaustive floras, covering the plants of the Commonwealth. The floras are of great importance in the identification of plants, and no effective use of the plants could be done without them.

The **Index Kewensis**, made possible through a gift of Charles Darwin, is the most extensive one of its kind. It lists all the scientific names of the known seed plants and references to the sources where they were published. A supplement appears every five years to bring the first edition of 1898 to date. The **Index Kewensis** is thus the standard reference for accepted plant names the world over.

Kew has rendered invaluable contributions to pharmacy, medicine, industry and other fields of science. Of the many contributions, is the transfer of the cinchona plants from the Andes to India. Another very remarkable contribution is the transfer of the rubber plant, *Hevea Braziliensis*, from Brazil to Java and Malaya now the center of the rubber industry. Pineapples, bananas, cocoa and coffee have been established in areas where these plants never grew before. Species of plants from Asia Minor were crossed with those from South America. Experimenting goes on all the time for the service of science and humanity. Kew botanists have some knowledge of the kind of vegetation that is to be found at this very moment on every square inch of the earth. Recent research in Kew's laboratories has suggested a new method for the classification of the plant kingdom by studying relationships revealed through microscopic examination of the plants. This method is proving very useful for the identification of timbers.

During the Second World War certain foodstuffs became scarce in

Great Britain. The experts at Kew started the experimental cultivation of those foodstuffs and raw materials which were normally imported from abroad. An interesting case is the substitution of Syrup of Rose Hips for Vitamin C which was badly needed by British babies.

The Wardian case, originated at Kew, is a travelling green house as large as a steamer trunk, with two sloping covers made of glass. Plants can be kept in it for a very long period of time without the further addition of water or of anything else. The water evaporates from the soil and the plant, condenses on the glass and runs back to the plants to be reabsorbed. These cases proved of economic importance especially for the forwarding of plants on very long journeys.

The rescue of the *Metasequoia* is another outstanding story in the history of Kew. The *Metasequoia* is known to botanists as a fossil plant from the age of the Dinosaur. Rumour came that the *Metasequoia* is still living in South West China. Dr. Merrill, Director-Emeritus of the Arnold Arboretum, Boston, Mass., provided funds for a search and for a rescue party. The party barely found 1000 trees and those are steadily disappearing. Seeds of the *Metasequoia* were shipped to Kew in 1948 and planted there. Now they are amongst the dearest and most valuable attractions to naturalists.

On every one of the six main gates, there is a bulletin board with programs of the most interesting features of the season. A map of the gardens guides to the most beautiful at-

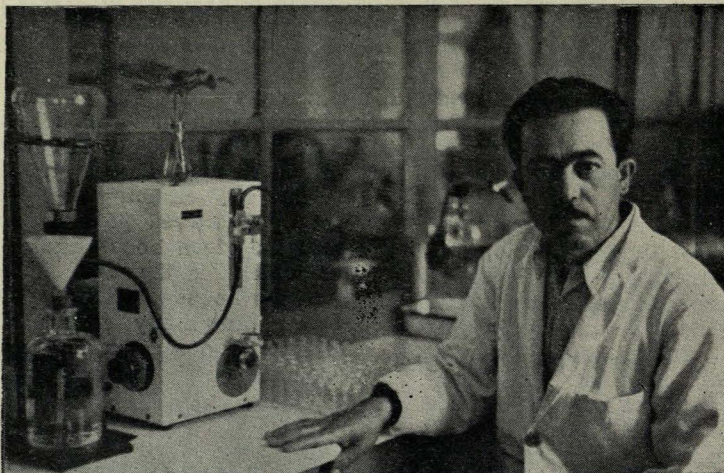
tractions such as the 163 ft. Chinese pagoda, the classic Orangery, the observatory, the museums where many collections of original paintings of plants and flowers bear the names of famous painters as Bauer, Gainsborough and others are displayed, the Conservatories, the climbing rose pergola, the many scattered little Greek temples and the green houses most important of which is the 360 ft. subtropic green house where palms, bananas and many of the rarest subtropic plants ripen under temperate conditions.

The work that this institution is doing and the knowledge and contributions it has rendered are beyond comparison. The more one serves at Kew, the more intense becomes his interest. Kew trains horticulturists which go everywhere, taking charge of parks, experimental biological stations, etc...

On the scientific side, Kew furnishes all kinds of plants for the needs of the systematic botanist, the plant breeder and the entomologist. It is the world's center for final identification of plants. From this will follow a more accurate study of diseases, a better knowledge of the soil and its cultivation and newer methods for combating insects and pests. To the general public, the Kew Gardens is a fine park, a place of peaceful uninterrupted rest, and lastly a place where one can increase his knowledge of nature.

Elie S. Nuwaysir,
Pharm. II.

Abstracted from **The National Geographic Magazine**, April 1950.



A QUARTER OF A CENTURY

Has it ever occurred to you that the first person whom you run after when you want to replace your broken beaker, has spent exactly twenty-five years in our School of Pharmacy ?

Mr. Butrus Musa, now 39, has seen a generation of « to be » pharmacists breaking burettes, cracking crucibles, spilling things all over the labs., and finally making their way to the commencement exercises.

As a boy of fourteen, he set his foot in our School to assist in the laboratories, and the following quarter of century has seen him keeping the laboratories tidy, manufacturing galenicals for the hospital, and even doing carpentry work.

That you have a constant supply of distilled water while titrating your unknowns is because Mr. Butros took care of it, that the tablets the pharmacy dispenses to the hospital should compete with the outside proprietaries is because Mr. Butros was accurate..., that the Aromatic Elixir leaving the manufacturing laboratory is as clear as sweet waters of Asia is because Mr. Butros handled the filtration **secundum artem**.

A man in whose ears, for a quarter of a century, have ringed the words « What shall I do with this burette? »... « If I only could get through my comprehensives »... « May I use ordinary water instead, Sir? »... « You know Pharmacognosy is no joke »... « My tablets are pinkish »... over and over again has seen the School grow — in the number of teachers, students, years, courses and troubles ! He has lived the far off days when the late Dr. Ladakis was the boss and our beloved Dr. Pauly was a young staffite, the time when the Pharmaceutical Society was, may be, a dream, and the good old days when Professors Haddad, Istfan, Abou Chaar were sweating over the next quiz, the time when Messrs. Vorperian and Karamanukian were the active members of the Society.... He has seen Professor Pauly take over the directorship, struggle for better standards, better curricula, and infinite public service through an era of world conflict, and is finally experiencing another new generation, just as pessimistic as the ones that have paraded before through the pages of the history of the School, just as impatient for the diploma, just as careless in the laboratories....

Having lived in an atmosphere of students' struggle for merit and achievement for twenty five seemingly-long years, one can now read, as ever, the philosophy of life in his eyes :

« Take it easy, young man, every 'today' becomes a 'yesterday' ».

It is, therefore, the duty of the APOTHECARY to reflect the sincere feelings of all students, and staff, past and present, and wish him the best of health and luck on the occasion of his « Silver Anniversary » in our School.

TO MY FELLOW STUDENTS

Here are some thoughts which came to my mind and which I like to share with you. I hope that in them you may find the means of elevating yourself, your profession and your interest in life.

Creative Thinking. When you enter into practice, a great deal of your time will be spent in the routine filling of prescriptions and attending to the various demands of your clients. Routine work has the tendency to reduce intellectual activity, and also tends to create boredom. It is possible to overcome these two undesirable tendencies by using your imagination and doing something creative. To do things in a novel way, to combine things in a little different way than what you or others had tried before, give you an intellectual inward joy.

Application of the Scientific Method.

As a man who has gone through an intensive scientific training, try to remember and apply the scientific method in your daily life. Avoid being dogmatic. Depend on experiment and fact, and do not jump quickly into

conclusions unjustified by proper investigation. Do not subconsciously assume matters to be so because of personal preference or prejudice.

Dynamism. Things in nature are dynamic rather than static. Here is a simple example to illustrate dynamism. Water in a cup is apparently in a stagnant condition. But, actually, it is not at all so. The molecules are in constant motion. There is also a condition of dynamic equilibrium between the liquid and the water vapor above it. Dynamism being a reality, it is good for you to be in harmony with that reality. Moreover, dynamism is a necessity to counter-balance the possible static tendencies in your practical life. The dynamic life in a human being is closely bound up with the will to act, with wide interests, challenging ideals and an adventurous spirit — all of these in combination will enrich life and keep it youthful.

Hagop Yazjian

Pharm. III

TWO NEWER INSECTICIDES

For a period of about five years beginning in 1934, Dr. R.E. Slade and other investigators at the Imperial Chemical Industries, Ltd. in England, carried on experiments with several thousand chemicals, in an attempt to find some synthetic agent or agents as effective in insect control as the pyrethrins and the rotenones. Of all the compounds tested the one that proved to be the best was hexachlorocyclohexane, often misnamed as benzenehexachloride, having the empirical formula $C_6H_6Cl_6$ and thus designated as « 666 ». This very compound was first prepared by Michael Faraday about 125 years ago.

While testing the product on insects, it was noticed that different samples gave inconsistent results, under identical experimental conditions. This observation led to the testing of various isomers of hexachlorocyclohexane. The alpha and beta isomers constituting the major part of any technical grade were found to be practically inactive, while the gamma isomer proved to be the only reliable toxic component. It was thus established that the insecticidal action of « 666 » was due entirely to the gamma isomer, and the name gammexane was introduced to denote this active component. This gamma isomer occurs to the extent of 10-13% in the crude technical product. The crude product is often referred to as « 666 ».

In the pure state, « 666 » occurs as colorless crystals which are practically insoluble in water but are soluble in numerous organic solvents such as Xylene, Carbon tetrachloride, Methanol, Kerosene, Benzene, and most of the aromatic solvents. All the isomers are stable at high temperature and in the presence of light and air. In its crude form, benzene hexachloride has a peculiar unpleasant musty odor. But purified and deodorized qualities have been marketed containing as high as 20-25% of the gamma isomer. However, technical grades of gammexane are

now available containing as high as 95% of the gamma isomer — and are practically odorless.

« 666 » has been successfully used both as a stomach and as a contact poison, in the form of dusts, poison baits, solutions and emulsions. Because of its exceptional solubility at high temperature it can be volatilized from hot plates or similar pieces of apparatus. When employed in this manner it serves directly as a fumigant against insects, and it also forms a toxic film on the walls and surrounding surfaces with which the fumes come in contact. The residual toxicity of these films can very nearly be compared with those of D.D.T.

As an ingredient in poison baits, « 666 » has proven to be more toxic to certain locusts than any material previously used for this purpose. At one laboratory where a colony of these insects was kept for experimental work, a small amount of dust containing « 666 » was sprinkled on one side of the room where the locust cages were housed. All the locusts in the cage died. Following this, the walls, floor, ceiling were vacuum cleaned and the floor of the cages was thoroughly scrubbed. In spite of these precautions fresh locusts, placed in those cages, also died. It was not until the room was completely repainted and cages rescrubbed that the breeding of the locusts could be resumed.

The German and Oriental cockroaches are easily controlled by dusts or baits containing 5% of gammexane. Lice and fleas on man or other animals are distinctly susceptible and can be controlled by a 3% gammexane dusting powder. Cloth moths, bed-bugs, ants and wasps are controlled by 5-10% dusting powders or sprays. Cereals are best preserved by fumigation. Gammexane sprays prove to be exceedingly toxic to adult house flies, but action is not particularly rapid. The addition of small amounts of pyrethrins to such preparations renders them

more active in their knockdown property. These sprays are also effective against mosquitoes. The treatment of garbage with gammexane dust aids in controlling the breeding of house flies. Wettable or spreadable gammexane dust is used in swampy regions for the control of mosquito breeding. In this connection half a pound of gammexane per acre of swampy land kills 97% of the mosquitoes larvae in 2 days and 100% in 3 days.

The toxicity of « 666 » or Gammexane has been subjected to numerous investigations. Taylor of al in experimenting for chronic toxicity, reported that rats could be fed 10, 20, or 30 mg. per kilogram body weight for 27 days without any ill effect. Fairhall, reported the « 666 », is less hazardous to humans than DDT. However Slade puts in the following weseer statement : « There appears to be little or no danger to animal or man by the use of « 666 », but with all new chemicals we have to watch carefully the effects upon skin and mucous membranes. It is difficult to deduce the effects upon man from the experiments on other animals ».

The formulation of a finished insecticide requires a careful choice and balance of toxicants and other ingredients. A household spray, for example, needs quick knockdown and absolute kill. But sprays intended for use on the farm call for toxicants which offer residual kill and repellency. The formulation of insecticides for the use of city dumps or warehouses, will differ sharply from those that will be sprayed around food. Therefore it is better to say that there is no one all-purpose insecticide. Often the manufacturers produce several toxicants with wide ranges of toxicity and other characteristics to suit different uses. In this connection I want to introduce to you « Isobornyl thiocyanacetate » commonly known as Thanite, which was introduced in 1940, by Hercules. It won an immediate acceptance because of its « triple duty » insecticidal properties,

namely, quick knockdown, quick kill, and residual action.

I shall not attempt to give full details about the Thanite family of insecticides, but I wish to include some formulations which may be of practical help to the reader.

1. — Housefly-Sprays

- a) Thanite 5% w/v in refined kerosene. The spray insures 100% knockdown in 10 min. and 80% kill in 24 hrs.
- b) An improved formula would be thanite 4%, DDT. 1% — in refined kerosene. Results in this case are : 100% knockdown in 10 min. and 100% kill in 24 hrs.

2. — Reach-Sprays

Thanite 2.25%, DDT 0.75% in refined kerosene. : 80% kill in 24 hrs. and 94% kill in 48 hrs.

3. — Mosquito-Sprays

- a) Thanite 5% w/v in refined kerosene. : 99.8% in 3 min. and 90% kill in 24 hrs.
- b) A 1.5% solution in kerosene of (20 %DDT and 80% Thanite) insures 86% knockdown and 94% kill in 24 hrs.

4. — Fabric Pests-Sprays

2.5% Thanite solution in refined kerosene.

Although Thanite is not a moth proofing agent, still, if this solution is thoroughly applied, it will protect the treated cloth for about 30 days.

5. — Bedbug-Sprays

Thanite has proved extremely effective against all stages of bedbugs including the eggs.

A 4% w/v in kerosene insures 100% kill in the 1st, 2nd, and 3rd

stage nymphs — and 99% of the adults, within 24 hrs.

6 — **Flea-sprays** or dips.

A 5% solution of Thanisol-70 in water is very effective. Thanisol-70 is a water miscible form of Thanite containing 70% of active Thanite.

7. — **Ant-Sp ays.**

A 3% w/v of Thanite in kerosene — as a direct contact spray. To ex-

terminate the pest, better use special sod. fluoride dusts or baits and DDT residual types of spray.

As to the toxicity of the Thanite family of insecticides, based on acute, subacute and chronic tests on laboratory animals and exposure of human subjects, it was concluded that a 5% solution of Thanite in highly refined kerosene is not more toxic than the solvent base alone.

APPLIED QUOTATIONS

TEACHERS :

- Prof. Haddad** — « Quality, not quantity is my measure » (Ferriold)
Prof. Abou Chaar — « Some books are to be tested, others to be swallowed and some few to be chewed and digested » (Bacon)
Prof. Istfan — « Absent in body, present in spirit » (Anonymous)
Mr. Vorpejian — « Reading maketh a full man » (Bacon)
Mr. Karamanukian — « To be, or not to be, that is the question » (Shakespeare)
Dr. Shakhashiri — « An apple a day, keeps the doctor away » (English proverb)

CLASSMATES :

- Alahaydian** — « Logic is logic, that's all I say » — Holmes.
Abdulian — « Much learning doth the mad » — Shakespeare.
Alami — « The first sigh of love is the last of wisdom » — Bret.
Batshon — « They eat that they may live, but I live that I may eat » — Greek saying.
Bezirgianian — « Better to reign in hell than to serve in heaven » — Milton.
Dürüst — « All philosophy in two words : sustain and abstain » — Epictetus.
Faydi — « If you wish to reach the highest, begin at the lowest » — Maxim.
Hembekides — « Happiness lies first of all in health » — Curtis.
Kayyali — « From listening comes wisdom and from speaking repentance ».
Kemelian — « Arguments out of a pretty mouth are unanswerable » — Addison.
Herman — « The society of women is the foundation of good manners » — Goethe.
Krikorian — « No one is exempt from talking nonsense » — Montaigne.
Kevorkian — « Life is a tale... full of sound and fury » (Shakespeare)
Maksad — « Much study is weariness of flesh ».
Manushakian — « As innocent as a new laid egg » (Gilbert)
Nazarian — « Two heads are better than one » (English proverb)
Nassar — « I would rather be right than president » (Clay)
Sagherian — « Never give advice unless asked » (German Proverb).
Shakarjian — « The clothes make the man » (Latin Proverb)
Yazijian — « One boy is more trouble than a dozen girls » (English Proverb)

Compiled by : Badi' Batshon, Pharm. III, & Salamah Kayyali, »

From — Henry, L.C., « BEST QUOTATIONS FOR ALL OCCASIONS », Perma books, N.Y.

SEMINARS OF 1949-1950

Abstracts of the seminars presented by members of the IVth Year Class are herewith given. The full texts of the seminars are kept in the Director's Office and are available for consultation if desired.

A Review of the B.P. 1948

by Partig Partikian.

An interesting review is given of the new, the seventh, British Pharmacopoea. The Pharmacopoea Commission now plans to publish a new revision every five years, as has also been decided by the U.S.P. Pharmacopoeal Board.

Oct. 24.

3 refs.

A Survey of the Vitamin B Complex

by Rauf Salfiti.

The following vitamins were briefly reviewed as to their history, chemical and physical properties, sources, indications, uses, and doses : B1, B2, Niacin, B6, p-amino benzoic acid, Pantothenic Acid, Inositol, Biotin, Choline, Folic Acid, B12, B14.

Nov. 28.

17 refs.

Bacterial Chemistry

by Farid Kusus.

After a brief review of some physico-chemical properties of colloids, absorption, pH, oxidation-reduction potentials, enzymes and theories of enzyme action, the following topics were discussed: the chemical composition of micro-organisms, the nutrition of bacteria, bacterial respiration, growth factors, and the effects of physical and chemical agents on bacteria. The following drugs used in chemotherapy of bacterial infections were mentioned : prontosil, sulphapyridine, sulfathiazole, sulfadiazine, sulphaguanidine and sulphasuxidine.

Oct. 31.

12 refs.

Detailing the Physician

by Joseph Abadi.

This in Lebanon is a new field into which many of the recent graduates have gone. By the scientific background which they have and the training they received, they are well qualified to undertake detailing. Training in the field is, however, essential. Intelligence in presenting the product, full knowledge about the product, knowing the speciality of the doctor, and courtesy are essential factors for the success of the detailer. Not only physicians but dentists and pharmacists should be detailed also. In Lebanon, the detail man, in many cases, is also a salesman in charge of taking orders for drugs.

Dec. 5.

Chemical Determination and Assay of Vitamins

by Nubar Babikian.

A book-review of « Methods of Vitamin Assay » edited by the Association of Vitamin Chemists and published by Interscience Publishers, 1947. The important methods used in the assay of various vitamins were well presented.

Nov. 14.

Urinalysis in Pharmacy

by Edward Ishkhanian.

A well presented outline of the various examinations performed on urine and a description of the various findings.

Dec. 19.

7 refs.

The Liquorice Industry in the Middle East

by Fahd Farraj.

Besides a pharmacognostical review of the plant and its history, an interesting account is given of the industry of liquorice in Syria. Fahd Farraj actually visited an industrial house in Damascus and obtained first hand information on the subject. The raw material, the root, is extremely cheap; however, transportation adds a great deal to its cost. Syrian houses now manufacture the extract in the form of bars and blocs and also put on the market medicated and non-medicated liquorice pastilles, liquorice powder and compound liquorice powder. These houses export to the countries of the Middle East as well as to Europe and America which import the crude drug.

The paper also includes methods of manufacture and assay. The manufacturing house visited acknowledged the valuable assistance received from the University through the technical advice of Dr. R.J. Pauly.
Jan. 9. 14 refs.

Recent Status of the Diagnosis and Treatment of Cancer

by Solak Tutçelian.

A review of the existing knowledge about the etiology, diagnosis and treatment of cancer and brief description of the various forms of cancer.

Jan. 16. 17 refs.

Chlorophyll in Pharmacy

by Maria Widacka.

A well presented account of the history and chemistry of chlorophyll is first presented. Assay methods, commercial forms and uses are then outlined.

Feb. 18. 50 refs.

Radio-Active Isotopes in Therapy and Diagnosis

by Anwar Hakim.

A comprehensive review of the uses and methods of application of radio-active substances and particularly the radio-active isotopes. The following radio-active isotopes and their applications are discussed and the results of their uses as tracers are given: phosphorus, iodine, iron, nitrogen and carbon. As a result of the use of these radioactive isotopes as tracers, many hitherto unexplained biochemical and physiological facts are coming to light.

Feb. 25. 13 refs.

B.A.L.

by Majid Yarid.

« British Anti-lewisite, dimercaprol or 2:3-dimercaptopropanol combines in the body with arsenic, mercury and other heavy metals which inhibit the pyruvate-oxidase system by competing for the sulphhydryl groups in proteins. It has a greater affinity than the proteins for these metals, and the resulting compounds are stable and rapidly excreted by the kidneys. Dimercaprol is used in the treatment of acute poisoning by arsenic, mercury and gold. » B.P.C.

Mar. 3. 13 refs.

Chloromycetin

by Fuad Hakim.

A good literature review of this new antibiotic introduced by P.D. & Co. The history, chemistry, physical properties, preparation, assay, and pharmacology are discussed at some length. Chloromycetin is D (-) threo, 1-p-nitrophenyl, 2-dichloroacetamide, 1:3-propane-diol. It is obtained from the filtrate of submerged aerated cultures of *Actinomyces venezuelae*, or prepared by chemical synthesis. It is a white crystalline substance so-

luble in water and in alcohol. It is neutral in reaction and is stable in neutral and acid solutions. It is unaffected by boiling in distilled water for more than five hours. It exhibits a high antibiotic activity against gram-negative bacteria, rickettsia, and certain viruses.

Mar. 10.

25 refs.

Anthelmintic Drugs

by Abdul Kadir Buhayri

A review of old and well established anthelmintics and of such new ones as gentian violet and diphenan (in pinworm infection), hexyl resorcinol (in round and thread worm infections), tetrachloroethylene (in hookworm and thread worm infections), and phenothiazine.

Mar. 17.

14 refs.

Insecticides

by Yusef Sanossian.

A brief review of the field of insecticides and fungicides. Stomach poisons such as white arsenic, paris-green, calcium hydrogen arsenate, tricalcium arsenate, lead arsenate, colloidal lead arsenate, zinc arsenate, copper arsenate, etc. were described. The fungicides were taken up next and such compounds and mixtures of copper and sulfur were described: copper sulfate, sulfur (sublimed, ground, colloidal, micronized and flotation), Bordeaux mixtures, and lime sulfur solutions. Contact insecticides, many of which also act as stomach poisons were finally taken up and the following discussed: plant derivatives such as nicotine, pyrethrum and rotenone; synthetic chlorinated hydrocarbons such as D.D.T., Methoxychlor, T.D.E., the gamma isomer of benzene hexachloride, chlordane and toxaphene; and the organic phosphorus compounds T.E.P. and H.T.P.; and parathione. In conclusion, household insecticides were enumerated. Sesamin, from

sesame seed, is a synergist increasing the potency of modern sprays. Household insecticides, nowadays contain an insecticide with high knockdown properties such as rotenone and pyrethrin combined with new synthetics such as D.D.T., gammexane (lindane), etc., which have a high residual kill, dissolved in a purified petroleum base and possibly small quantities of other organic solvents, aromatics and repellants being also added.

Mar. 24

3 refs.

Digitalis

by Hagop Mekhtchian.

A review of the history, chemistry, pharmacy and pharmacology of *D. purpurea* and of the related species *D. lanata*. Lanatosides A and B (Digilanids A and B) of *D. lanata* are the glucoacetyl derivatives of Digitoxin (Digitaline Nativelle) and gitoxin of *D. purpurea*, respectively. The third glycoside of *D. lanata* — Lanatoside C (Digilanid C) yields digoxin which, however, is not identical with the third glycoside of *D. purpurea* — gitalin, and is more active than the latter. Digitalis *lanata* contains more of the active glycosides. The crystalline lanatosides and digoxin are suitable for administration both orally and parenterally. Digitalis and its glycosides, in therapeutic doses, increase the force of contraction, irritability and tonicity of the heart, thus increasing the output of blood per minute. Digitalis is the specific drug in congestive heart failure, in auricular flutter and in auricular fibrillation.

Mar. 31.

35 refs.

National Pharmacy Week

by Nadim Khalluf.

Each year, in the United States of America, and under the auspices of the American Pharmaceutical Association, the pharmacists, the colleges of pharmacy, and the local pharma-

ceutical associations set aside a week — The National Pharmacy Week — to honor their profession. During this week, by suitable window displays and by talks on the radio, they attempt to focus the attention of the public : on the profession of pharmacy — its history, its educational background and its duties; and on the rôle of the pharmacist in the public health service — by taking active part, with cooperating societies, in the fight against cancer, tuberculosis and venereal diseases.

Apr. 21.

20 refs.

Chromatography and Its Applications in Pharmacy

by Hagop Ishkhanian.

Chromatography is the process of isolating substances by passing their solutions through a column of a proper adsorbent and then washing the column or portions of it with a suitable solvent to obtain the desired principle. Chromatography is being extensively used both in the analysis and separation of plant principles and biological fluids, and in the assay of vegetable drugs and their constituents.

The theory of chromatography, the apparatus, reagents and procedure used in chromatographic analysis are discussed. Illustrations of the application of chromatography in the examination of foods; urine analysis; analysis of dyes, tannins, balsams, alkaloidal drugs, alkaloids and galenicals are profusely given. (See also «A General Survey of Chromatography by Edward Vorperian, The Apothecary 1947, p. 37).

Apr. 28.

9 refs.

Effective Window Display

by Fuad Zaru.

A brief and well presented account on show windows which are too often neglected by the average pharmacist. A window display, if properly mounted, is a great asset to the store attracting prospective customers. It

should be emphasized that none of the articles displayed should include drugs or their specialities which can be dispensed only on a physician's prescription.

Elementary rules of a good window display consist of : a not too deep show window ; proper lighting which is neither glary nor dim but is still bright ; proper color scheme which varies with the season — the best being one which combines two colors which match such as green and putty, green and cream, red and green, brown and gold, navy blue and grey, red and cream, deep rose and mild grey, yellow and blue, etc.; displaying only few quick selling items attractively disposed on versatile stands; indicating the prices of displayed items by properly printed cards in addition to statements stimulating the interest of prospective buyers — writing shows best when in black on yellow or in black on white ; and finally of the importance of frequently changing the displays at least once every two weeks. May 12. 5 refs.

Viruses : Their Morphology, Physical and Chemical Properties

by Anna Bem.

Viruses form a heterogeneous group which causes disease in animals, plants, man and bacteria. No general agreement has been reached on whether viruses are living or non-living. All of them, however, can multiply only in living tissues and all of them possess nucleic acid. The real study of viruses began with Iwanowski in 1892 on tobacco mosaic virus. The invention of the collodion membrane, the ultracentrifuge and the electron microscope enabled scientists to see and measure viruses. Viruses vary in size between 10 and 500 millimicrons. In shape they may be rods, spheres, oval or sperm shaped. Viruses are negatively charged and, generally, are most stable at pH 6-9. High temperature destroys them. May 19. 14 refs.

C. A.

CONTRIBUTIONS OF PHARMACY TO SCIENCE

Long ago in the dark ages of history, when disease was believed to be caused by evil spirits taking possession of man's body ; the priests treated their patients by making their surroundings as unpleasant as possible, thus hoping to drive these spirits away . Through their mysterious rites which they performed, the priest administered to the patient ill tasting herbs, roots and berries in order to make his body distasteful to the spirits that inhabited it. Among these herbs used, some had beneficial effects. The priests devoted their lives to the service of their afflicted fellowmen. They were the first pharmacists. It is from them that pharmacy through the get has come, arlying with it inseparably a tradition of service freely given and a code of ethics jealously preserved. Pharmacy has grown now into a science of wide usefulness but its aims, duties and principles have remained unaltered.

The tradition of Pharmacy has always been to prepare and compound the medicaments which prevent, control or cure disease and relieve suffering.

Pharmacy, in its history, has given birth to other sciences as Botany and Chemistry.

Chemistry grew out of Alchemy, at the hands of the Arabs. Alchemy with its search for the Elixir of Life and the Philosopher's Stone, grew out of Pharmacy.

Here is a pharmacist who lived 150 years ago. He spent his life in a Swedish apothecary shop. He did not only compound prescriptions. This

Swedish pharmacist was Carl W. Scheele. He bequeathed to the world great discoveries made in his apothecary shop and gave them freely to his patrons. He was respected and loved. In his spare time, when there were no prescriptions to fill, and no one was waiting to seek his advice, he worked to satisfy his curiosity.

He first discovered chlorine gas and from this came a revolution in the bleaching industry. Instead of soaking cloth in sour milk and boiling lye and exposing it to the sun for weeks and months, it could be bleached in a few hours. Scheele also discovered glycerin, oxygen, phosphoric acid from bones and tartaric acid from argol and is also credited with the discovery of hydrofluoric acid. So valuable have Scheele's discoveries been to industrial chemistry that chemists have adopted him as one of them, and forgot that he was first and last a pharmacist, and that his discoveries were made during the preparation of pharmaceutical products and along with the active discharge of his pharmaceutical duties.

Carl Scheele is only one of hundreds of pharmacists that have made important discoveries. Before Scheele's time the great majority of drugs used in therapy were of vegetable origin, the adepts of pharmacy have been botanists from the very beginning of pharmaceutical activities. Many of the early botanical gardens were established by individual pharmacists or pharmaceutical associations. Again here, the number of pharmacists that contributed to this end are many. In all countries of the world in which

science has found a place, the knowledge of the local flora has been largely promoted by practicing pharmacists and, as far as their research has resulted in books, their names have been listed in the various histories of Pharmacy.

It is very interesting and highly important to note that it was the pharmaceutical training and experience of the botanists emerging from pharmacy — that particular pharmaceutical combination of chemical and botanical knowledge — which gave to the work of most of these men a specific character and made it a special contribution to society. Besides writing botanical books and examining, determining and classifying plants, they studied the plant constituents and developed into phyto (plant) chemists. It was the pharmacist Carl W. Scheele who, by proving the possibility of systematically preparing plant constituents as chemical individuals, became the recognized founder of modern plant chemistry. It is not surprising that the isolation of the alkaloids, for instance, has been for decades almost a pharmaceutical family affair.

We thus see how pharmacists have made original contributions to science. It is easy to decide who discovered iodine and quinine, morphine and chlorine and thousands of such discoveries; but in modern times, scientific discoveries are brought about through the teamwork of many scientists; and so one cannot easily trace the discovery of such drugs as streptomycin, sulfanilamide and radio-active phosphorous to one person even not to one laboratory.

Many research workers in chemistry, bacteriology, biochemistry and pharmacology, have pharmaceutical training, but they have specialized further by studying beyond the pharmacy degree. In this way the modern research pharmacist still contributes as a member of the research team — to the discovery of new drugs, just as some of the old apothecaries who worked so brilliantly in this field.

NADIM KHALLUF

Pharm. IV



CHLOROPHYLL IN PHARMACY

Historical Introduction.

The green coloring matter of plants was first given the name «chlorophyll» by the two great pharmacists of Paris, discoverers of quinine, Pelletier and Caventou in 1817. Its empirical formula was determined in 1913 by Willstätter and Stoll and further studies by these and other scientists finally established its structure. In the 20th century chlorophyll has been found to possess healing and antibacterial properties.

Occurrence.

Chlorophyll occurs in the chloroplast of the green leaves together with carotin and xanthophyll (yellow pigments) and the enzyme chlorophyllase. It is found in the greatest concentration in the stinging nettle, alfalfa, spinach and blue grass.

Method of preparation.

For medical and industrial uses the chlorophyll may be obtained from fresh and dried leaves. Extraction is carried out by means of such solvents as acetone, alcohol, benzene, petroleum ether and xylene. The method most used in extracting chlorophyll from leaves is as follows: green leaves are extracted with petroleum ether and methyl alcohol, giving chlorophyll A and carotin in the ether layer and chlorophyll B and xanthophyll in the methyl alcohol layer. The petroleum ether portion is treated with methyl alcohol and KOH solution which separate chlorophyll A (saponified by KOH) from carotin (in the ether layer). To the solution of chlorophyll B and xanthophyll in the methyl alcohol layer ether and distilled water and then methyl alcohol and KOH solution are added — this results in the separation of chlorophyll B (in KOH layer) from xanthophyll. The chlorophyll A or the chlorophyll B portion is then treated with 20% HCl and water, subjected to evaporation, and then dissolved in alcohol. If a metal derivat-

ive is required e.g. the copper derivative, copper acetate is added.

Chemistry.

Chlorophyll is really a mixture of two substances ; chlorophyll-A, $C_{55}H_{72}O_5N_4Mg$ and chlorophyll-B, $C_{55}H_{70}O_6N_4Mg$. Chlorophyll A is bluishgreen and makes up about 3/4 of natural chlorophyll. Chlorophyll B is yellowish-green and makes up about 1/4 of natural chlorophyll. Both are crystalline solids soluble in alcohol, acetone, chloroform, ether, carbon disulfide, benzene and petroleum ether. Both are esters of dibasic acids chlorophyllin A, $C_{32}H_{30}O_4N_4Mg$. (COOH)₂ and —B, $C_{32}H_{28}O_2N_4Mg$. (COOH)₂ respectively, combined with phytol, $C_{20}H_{39}OH$ and methanol.

Chlorophyll derivatives.

Chlorophyll derivatives are divided into three groups, the first two being used in medicine :

- a. water-soluble derivatives of chlorophyll — obtained by the action of dilute alkalies on the purified extracts e.g.
 - sodium-magnesium chlorophyllin (used medicinally) $C_{34}H_{31}O_6N_4MgNa_3$
 - sodium-copper chlorophyllin (used medicinally) $C_{34}H_{31}O_6N_4CuNa_3$
 - sodium-iron chlorophyllin (used as a dye) $C_{34}H_{31}O_6N_4FeNa_3$
- b. oil-soluble derivatives — obtained by diluting the purified extract with varying amounts of a suitable fat. To this also belong the copper and iron pheophytins, $C_{55}H_{72}O_5N_4Cu$ (used as a dye), and $C_{55}H_{72}O_5N_4Fe$ (used in treatment of anemia) respectively.
- c. alcohol-soluble derivatives obtained by diluting the extract with castor oil or other suitable oil.

Action.

The effect of chlorophyll in wound healing is two-fold: first the prevention of fibrinolysis and second the encouragement of fibroblastic activity, resulting in a rapid formation of healthy granulation tissue. Chlorophyll exerts a definite bacteriostatic effect upon many of the common tissue invaders and even an actual bactericidal effect upon some of the anaerobic bacteria (due to its capacity of setting free oxygen). In suppurative diseases chlorophyll acts by causing the cessation of pus formation. Chlorophyll has the ability to relieve itching and burning, to stop bleeding from the gums, to dilate blood vessels, to remove bad odors and to maintain regular regenerative processes.

Uses.

a. medicinal

This green pigment of plants has been known to Pharmacy for some years as a coloring agent but now it occupies a place of importance in therapeutics.

Chlorophyll and its various derivatives have been used effectively in wound and burn healing; in the treatment of suppurative diseases; in respiratory tract, ear and dental infections; in conjunctivitis; in skin diseases, abscesses and ulcers of various origin; in anemia; in fungus infections and in plastic surgery. Chlorophyll has been found to be non-toxic.

Chlorophyll is employed, depending on the case, in the form of an aqueous, 0.2% solution of water-soluble chlorophyll or in the form of an ointment. Ointments contain from 0.5 to 3% of water-soluble, or oil-soluble chlorophylls in a suitable base, sometimes a local anesthetic is added. Chlorophyll is used also in the form of a dusting powder, tablets, eye-drops, nose-drops, suppositories,

jellies and even in the form of a chewing gum.

b. industrial

Chlorophyll derivatives are being used as screening compounds against the sun rays, in removing volatile nicotine from tobacco, in air-conditioning, in removing objectionable odors from air and as antidetonant additives in gasoline. One of the most important uses of chlorophyll in industry is in the estimation of the stability and freshness of oils and fats by means of « chlorophyll values ».

Chlorophyll preparations on the market.

Chlorophyll preparations are commercially available under the proprietary name « Chloresium », manufactured by Rystan Co., Mount Vernon, N.Y., U.S.A. and also from the American Chlorophyll Inc., Alexandria, Va., U.S.A.

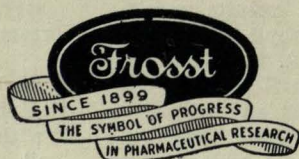
« Chloresium » products include : Chloresium Aerosol Solution, Chloresium Dental Ointment, Chloresium Tooth Paste, Chloresium Solution (Plain), Chloresium Ointment and Chloresium Nasal Solution.

Conclusion

It is evident from the above that chlorophyll, long employed in pharmaceutical manipulations as a coloring agent, has found for itself a place in modern therapeutics.

It would be interesting to note that grandmother's empiric treatment for cuts and sores by applications of a poultice of green leaves or by the application of a freshly exposed surface of the inner tissues of the leaf finally finds its justification in today's research.

Maria Widacka — Pharm. IV.



DR. PAULY'S VOICE

Below is the text of the recording heard by the students and faculty of the School in the last business meeting of the Pharmaceutical Society on May 25, 1950. The recording had been requested of Dr. Pauly earlier in the year. The audience was greatly thrilled at hearing the voice of their greatly beloved Director Emeritus and Teacher. The students in general and the graduating class in particular wish to thank Dr. Pauly for his very kind message.

Students of the school of Pharmacy of the American University of Beirut, especially the Senior Class about to leave these Halls of Learning :

You probably will not recognize my voice over this medium of communication, but I trust that it will bring me closer to you in spirit than would be accomplished by the written word.

It is an honor to be asked to speak to you and I am, indeed, most grateful for the appreciation you have shown me not only on this occasion but throughout all my years of teaching at Beirut. Had my own children not grown up and needed a home in their fatherland I would still be with you. You, too, are growing up - even beyond the point where you no longer need a protecting paternal hand, to the age where you are now ready to take your place as a member of the larger family of established society and make a home for yourself.

If you fulfill the promises that should be the result of a proper upbringing and a thorough education you will have nothing to regret in the future. It has been impressed upon me time and again that the education you receive in the School of Pharmacy at Beirut is of the very best. How else would it be possible for its graduates to become control chemists in petroleum refineries, bacteriologists, Medical Technicians, national directors of medical supplies, government inspectors of pharmacies, advisors to departments of public health, wholesale importers, members of parliament, besides being able to furnish sufficient professional pharmacists and modern outstanding pharmacies to supply the medical needs for the various populations of the Near East.

Filial devotion to parents is a well established custom in your part of the world. I know that you will always honor and respect the loving care that your parents have bestowed upon you. Graduates of the past have looked upon this School as coming next after their parents in having influenced their lives and also have always shown it great honor and respect. I hope you will not only keep up such traditions of the past but also that you will enlarge upon them by taking an active part as an alumnus of the School, supporting its annual publication "The Apothecary", its conferences or refresher courses, and its needs.

May God bless all of you and grant you success and happiness in your future work.

THE PHARMACEUTICAL SOCIETY

Some really strange things occurred around our part of the campus this year, and our Society was no exception.

The opening of the year in October saw the Society in its seventeenth anniversary in a state no better than desperate. All seemed so dark — for members were divided, a post-election partition was inevitable, as was the case in the last few years. The aims for which the Society was founded by the energetic youth of the early thirties seemed nearing collapse... The beginning of the election campaign dissolved the hopes of even the least pessimist... The outgoing cabinet tried its best to reinstate stability — in vain. Then, all of a sudden, a miracle seemed to happen! A group of members seeing that this was no way for the good of all, came together, reconciled the candidates, and a list of names believed to be neutral were nominated for the various cabinet posts. The election meeting of October 26 was a rare occasion — in fact a sight forgotten for years. As President Zam excitedly addressed the members with the opening statement: « Now that you have given us unanimous support, we shall have the best year of the Society... », some had their tongues in their cheeks — « We'll see, of course, » they muttered.

Taking up its duties the very night of the elections, the cabinet began its series of meetings to break the record of all previous years: thirty seven as compared to an average of fifteen per year of the former cabinets. A social-activities' sub-committee of cooperative and eager members was set up, and began rolling up the sleeves for the pile of activities listed at the end of this article... Faculty Adviser Mr. L. Karamanukian was a very cooperative and helping friend. President Zaru consumed many shaving blades in preparing for the openings of meetings, Vice-President Shakarjian lost a good portion of his voluminous weight in running after party problems. Secretary Dürüst changed two

fountain pens, wore out three pairs of shoes and broke a typewriter, Treasurer Nuwaysir nearly went mad with the accounts of activities piling one after the other, and all complained of aching feet as merry couples left dance halls at 1 A.M.

The cabinet stretched its hand to the new-born **Amicale de Pharmacie** of the French Faculty for joint activities. Both parties attended lectures, films and joint Dances at both Faculties.

In looking back to the year nearing its end, that was «full of sound and fury» the cabinet is in no position to boast of what has gone on to their credit —. If any one congratulates us, why thanks; if, however, you think we were not worth the trust you put in us, we simply say that we have been a body of persons of good will enough and through perhaps, in the words of Shakespeare,

«The evil that men do lives after them
Their good is oft interred with their bones»

will be our verdict, in the opinion of many a literary-minded member.

Whether or not we really have been a successful group is not a concern of ours. It is whether we have put an example before the eyes of all future members of the Society; for this year, the Society has received the greatest tribute and cooperation it has received in years; more than any other Society on the campus. This year more members participated, and the Pharmaceutical Society, in its humble existence, lead the activity record of all other A.U.B. societies... Had it not been for the members, how could the cabinet alone have ever taken the initiative for all these?

Therefore, if we have proved that cooperation of members and their enthusiastic support keep this organization alive, as much as its eager Adviser and officers, then we can relax — for having accomplished a hard part of our duty.

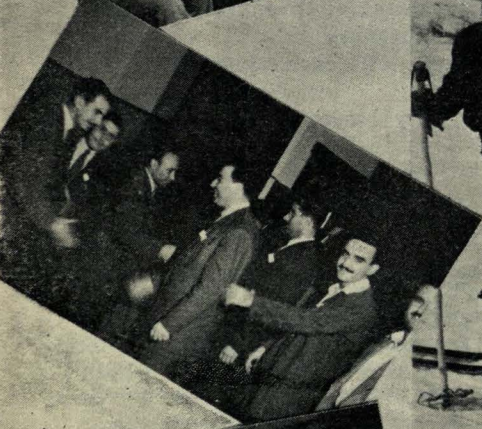
The Cabinet, 1949-1950.

ACKNOWLEDGEMENT. — The Cabinet considers it a duty to thank openly Mr. Karamanukian — their Adviser, — and members of the Pharmacy Faculty for their advice, support and help throughout the year; members of the Sub-Committee on Social Activities whose cooperation contributed so much to the success of the various functions; also all members who participated in these activities and the general body of the enrolled membership for their helpful suggestions and constructive criticisms.

ACTIVITIES

1. **Oct. 26, 1949** — Election Meeting, 208 Pharmacy Bldg.
2. **Nov. 4, 1949** — Reception in Honor of First Year, West Hall, Common Room.
3. **Nov. 21, 1949** — Dance Party at the Beirut Alumni Club.
4. **Dec. 8, 1949** — Dr. Badeer's Lecture — Demonstration, FEAR and RAGE, 102 MSB.
5. **Dec. 10, 1949** — Dance Party at the Beirut Alumni Club.
6. **Dec. 20, 1949** — U.S.I.S. Films, 102 MSB.
7. **Jan. 19, 1950** — Dr. Kanaan's Lecture-Demonstration, FOODS, DRUGS and POISONS, 102 MSB.
8. **Feb. 12, 1950** — Skiing Trip to Dahr-al-Baidar, with American College for Women.
9. **Feb. 18, 1950** — Joint Pharmaceutical Dance with the students of the French Faculty and American College for Women, at the Beirut Alumni Club.
10. **Mar. 5, 1950** — Visit to IPC Refinery in Tripoli, picnic at Zcgharta.
11. **Mar. 16, 1950** — Prof. Allen's Lecture, OPPORTUNITIES IN BIOCHEMISTRY, 102 MSB.
12. **Mar. 30, 1950** — Business Meeting. Revision of the Constitution (effective through 1955) ; Honorary Membership extended to Prof. — Emeritus Dr. R.J. Pauly., 102 MSB.
13. **Apr. 1, 1950** — Fancy Dress Party at the home of Prof. Haddad, with the **Amicale** of the French Faculty.
14. **Apr. 27, 1950** — Interclass debate, Pharmacy III over Pharmacy IV, 208, Pharmacy Bldg.
15. **May. 1, 1950** — Interclass debate, Pharmacy I over Pharmacy II, 208 Pharmacy Bldg.
16. **May. 6, 1950** — Trip to Hammana.
17. **May. 16, 1950** — Film show, courtesy of U.S.I.S., 102 MSB.
18. **May. 18, 1950** — Debate Championship. Pharmacy I winner. 208 Pharmacy Bldg.
19. **May. 25, 1950** — Closing Business Meeting. Report of the treasurer, of the social activities committee. Distribution of prizes to debate winners and to the most active member of the society. Addresses by Prof. Haddad and Mr. Karamanukian. Dr. Pauly's address to students — heard on record.

Photographs on the following pages are some of those taken during the various activities, by our photographer, Samy Atala of Pharmacy II, to whom we are indebted for his cooperation all through the year, and whom we shall miss next year, on his departure to Chile, his homeland.





THE UNIVERSITY PHARMACY

Ever since its establishment in 1903, The University Pharmacy (then, the College Pharmacy) had as its main function the supplying of medicines, drugs and chemicals of the best quality available, to the University Hospital, to the University Community and to the Students. In previous years when the classes of the School of Pharmacy were small, students were allowed to do their dispensing laboratory in the University Pharmacy under the supervision of the University Pharmacist. At present this arrangement is temporarily discontinued and students get practical experience in the Pharmacy Laboratory in addition to the practical experience they acquire during their year of practice in an approved pharmacy.

Before attempting to describe the work and operations involved in the dispensing of medications and various supplies, it would be better to dwell for a while on the Hospital Formulary. The Formulary is a convenient list of the preparations regularly stocked for the use of ward and outpatients. Other drugs are not regularly dispensed to these teaching services. It is hoped that this limitation will act to improve the standards of therapeutics. Brief information is given about the size, the strength and the composition of each of the products listed. Some of the compounded products are given distinctive titles under which they can be ordered by the Hospital. The Formulary is edited by the Drug Committee composed of the Director of the School of Pharmacy as chairman, and the chiefs of the following services as members: Internal Medicine, Surgery, Gynecology and Obstetrics, and Applied Pharmacology. This Committee generally meets three times during the year to discuss

changes in the Formulary, so that this book is kept up-to-date with recent developments in therapeutics. The Drug Committee has adopted the following criteria, indicated in the forward of the Formulary, for selecting drugs for inclusion in the formulary:

« 1 : — Official or semi-Official (U.S.P., B.P., N.F., and N.N.R.) preparations are preferred. French Codex names have been omitted because of their length. Other criteria are similar to those in use by the Council of Pharmacy and Chemistry of the American Medical Association in its acceptance of drugs for New and Non-Official Remedies. 2 : — The composition of the preparation must be known. 3 : — Therapeutic claims for drugs must be supported by scientific evidence. 4 : — Names: A single generic name of scientific origin promotes medical science more than protected names. Trade-marked names are not accepted by the Committee as principal designations unless no other simple name exists. The use of a protected name is unscientific; it advertises a single manufacturer. The first name listed in the Formulary is the title by which it should be ordered. Official synonyms are listed in parentheses. Protected name synonyms are listed in quotation marks. Therapeutically suggestive names have generally been eliminated, except in the case of sera and vaccines. Names which do not indicate the composition of the preparation have been eliminated where possible. 5 : — Mixtures are considered undesirable unless they present some real advantage over the individual ingredients ».

The Drugs in the Formulary are arranged according to their therapeutic classification. The Formulary also contains a brief statement

about the Local Narcotic Regulations, abbreviations used in the Formulary, table of metric doses with approximate apothecary equivalents, and a detailed alphabetical index. Items commonly requisitioned rather than prescribed are included in the Formulary, i.e. disinfectants, infusions, solvents, lubricants, roentgenologic diagnostic agents, inhalation anesthetics, etc. The section **Diagnostic Agents** retains many in common ward use. The Pharmacy also stocks preparations other than those in the Formulary and, indeed, can supply from Beirut or elsewhere any drug procurable.

The Pharmacy is quite a spacious place composed of the following (sections) : 1. The Officine — is the place where medications and extemporaneous prescriptions are dispensed. 2. The Dispensing Laboratory — is the place where all hospital, outpatient or departmental medications and private prescriptions are compounded and where various stock preparations are prepared. 3. The Wash Room — is the place where all apparatus and various containers are cleaned, dried, covered, and placed in separate cupboards where they become ready for use. Adjacent to the University Pharmacy is the well equipped Manufacturing Pharmacy Laboratory, which is divided into two sections — the Ampul Room and another room for preparing tablets and other products made on a large scale. More than 20 different parenteral injections are prepared and more than 20 different types of tablets are compressed for the dispensing use of the University Pharmacy. Glucose and Glucose in Saline infusions are prepared under the supervision of the University Pharmacist in a special sterile Solution Room adjacent to which are two big steam heated autoclaves used for the sterilization of all the Hospital sterile supplies. Distilled water is prepared on the day when sterile solutions are prepared, normally three times a week. 4. A General Store is available as well as a separ-

ate store for dangerous and inflammable chemicals. A refrigerator is also available for the storage of products which need to be stored under refrigeration.

The University Pharmacy is under the jurisdiction of the School of Pharmacy and its staff is composed of a University Pharmacist, an Assistant University Pharmacist — both of whom are qualified Pharmacists, a part time secretary, a technician and two orderlies.

Now I shall attempt to give a full account and explanation of the normal procedure of operations carried out by the hospital and pharmacy staff in the ordering and despatching of medications and supplies to the different hospital units. The staff nurse of each pavillion writes the daily requirements of that floor on a special requisition form which is normally checked and signed by the supervisor. The requisition is then sent to the Pharmacy with the empty containers between 8 and 9 a.m. and are ready to be delivered to the hospital at about 11 o'clock. The University Pharmacist or his Assistant checks all items requisitioned regarding quantities, proper signatures, etc., and cancels ordered items that are not official in the Hospital Formulary. However, a product for ward use and not found in the Formulary can be supplied to the floor only on the presentation of a separate requisition signed by the Chief of the Hospital Service concerned and countersigned by the Business Manager of the Hospital. After the orders are filled and checked, they are delivered to the hospital pavillions to be received and checked by the nurse in charge. Requisitions are returned to the pharmacy and are charged to the account of the service. Monthly bills are sent by the Pharmacy to all Hospital Units.

Narcotic drugs are supplied upon the presentation of a separate requisition. A receipt for the narcotic is signed by the supervisor of the pavillion and sent to the Pharmacy

for filling. A special Hospital Narcotic Record Register sheet is supplied with each narcotic dispensed and after it is filled is returned back with the empty container every time a new supply is demanded.

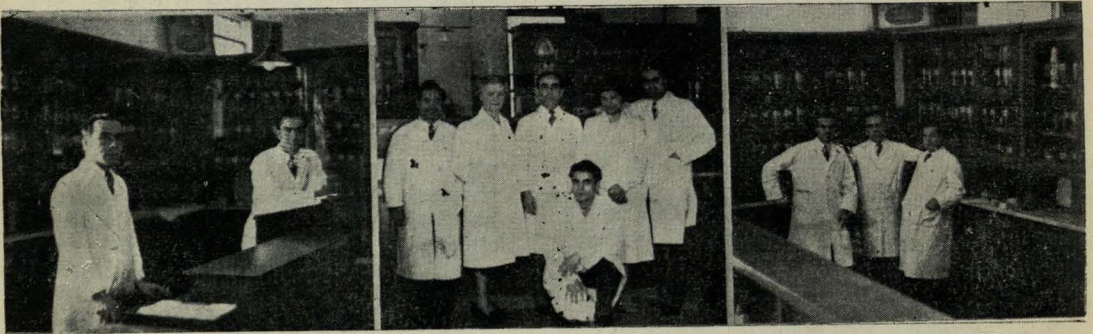
Each pavillion has its own medicine closet where all medications are stored for the patients' use. In addition, a Central Medicine Closet is available for the use of all the pavillions and it contains emergency drugs which are not regularly stored in the medicine closet of the pavillions. Emergency drugs can be drawn upon only during the closing hours of the University Pharmacy namely, during the night, on Saturday afternoons and on Sundays.

Besides the filling of hospital drug orders, the University Pharmacy dispenses a number of prescriptions for O.P.D. poor patients who take their medicines free of charge, and

prescriptions for boarding students as well as for those of the University employees who are eligible to purchase their medicines from the University Pharmacy.

Most of our supplies are ordered directly from the manufacturers abroad. Items that are not consumed in large quantities are purchased from the local importers. For each item ordered there is a record card on which receipts and issues are recorded. These cards are kept up to date daily. At the end of each year an inventory is taken and according to the year's consumption the quantity of each product to be ordered for the following year is determined. Dated products are regularly inspected and those which are overdated or spoiled are destroyed.

Jamil I. Bargash,
University Pharmacist



Left to right: J. Barghash, Ph. C. (University Pharmacist), A. Jidawn, Ph. C. (Assistant Pharmacist)—John Adil (Dispenser), Mrs. S. Sivinsky (Secretary), J. Barghash, Miss V. Stephan (practitioner), A. Jidawn, I. Fayyad (orderly)—J. Barghash, A. Jidawn, J. Adil.

DO YOU KNOW THAT ?

Dean and Mrs. J.O. Pinkston and their two children will be leaving shortly to the States on a year of furlough. Dr. Pinkston will be carrying research at Princeton University. We wish them godspeed and look forward to seeing them again with us.

Acting Director Prof. Amin Haddad and Mrs. Haddad are now the happy parents of little Nouha who arrived on January 20 in answer to the prayers of young Fareed who wanted a sister to play with.

Dr. and Mrs. R.J. Pauly and their family sailed from Beirut on the s/s Exochorda on July 5, 1949 and arrived in Boston some 19 days later. Dr. Pauly is now assistant director (pharmaceutical division) of the Sterling Winthrop Research Institute at Rensselaer, N.Y., U.S.A. The Paulys live in their beautiful house at 147 South Pine Avenue, Albany 3, N.Y. Dr. Pauly continues to take a very active interest in the School. He writes regularly and is in close touch with the affairs of the School and the University. He is with us in spirit though he be far away in body. We wish him and the whole family continued health and happiness. In an impressive ceremony on March 30, 1950, the Pharmaceutical Society of A.U.B. voted Dr. R.J. Pauly an honorary life member. The certificate of membership, which was received by Prof. Haddad on behalf of Dr. Pauly, was mailed to our director emeritus few days later.

Prof. F. Istfan is expected back in Beirut by the end of August. He will be coming back to us with a « Docteur en Pharmacie » degree and a rich experience. He left for Paris by plane early last summer. After spending a month or so in Paris meeting his professors and making arrangements for his research and studies, he then left for a month which he spent in visiting

schools of pharmacy and other institutions in England and Scotland. Returning to Paris he plunged deep in his studies and in his experiments. After hundreds of tests he developed methods for the assay of calcium chlorostreptomycin, of dihydrostreptomycin, of a mixture of the two and of tests for the detection of streptomycin in dihydrostreptomycin. Thousands are working to develop such methods and it is most gratifying that our professor should be successful in this race. He spent the Spring Vacation seeing Central Europe. We look forward to his coming home.

Prof. Charles Abou Chaar returned from the United States last July. He came back with the M.S. degree, Major pharmacognosy. He studied at the Massachusetts College of Pharmacy, Boston, Mass., under Dr. H.W. Youngken the well known pharmacognosist and author of « Textbook of Botany » and « Textbook of Pharmacognosy ».

Prof. J.D. Matthes, professor of chemistry at the Massachusetts College of Pharmacy, writes regularly to enquire of the news of the School and of his students, to whom he wishes to be remembered. Thanks to Prof. Matthes, Prof. Abou Chaar was able to see a great deal of the United States when he was there. He travelled, together with him in Prof. Matthes' car some 6000 miles from the North East to the South, from there to North West, then along the West Coast to San Francisco and from there North East back to Boston. They attended together the Plant Science Seminar in Seattle and the Annual Convention of the Amer. Pharm. Association during the summer of 1948.

Prof. J.C. Kéne — visiting professor of philosophy, **Dr. Amin Khairallah** the well known surgeon and **Mr. Rashid Rishani** — a pro-

minent Beirut pharmacist gave three valuable addresses on pharmaceutical ethics to the graduating class.

There have been some changes in the School since last June. The big room at the left of the entrance was divided up into a completely closed ampul room with glass walls and a larger room for the Manufacturing Pharmacy Laboratory. New mezonite blackboards now replace the old ones in the lecture rooms and labs. of the second floor. The Society has decorated the Reading Room with new olive green curtains for the windows also by framing and hanging the late Dr. Ladakis diplomas, by installing a bulletin board for the Society and by having the fixtures all painted. The draining system of the whole building was replaced by new pipes. It is expected that the Pharmaceutical Chemistry Laboratory will be modernized during this summer.

Enrollment in the School during 1949-50 was 93, distributed as

follows — 30 First Year, 24 Second Year, 20 Third Year, 19 Fourth Year.

There will be the following changes in the curriculum for the year 1950-51.

Organic Chemistry will be made a year course, no pharmacognosy will be given in the second year, Pharmacy Laboratory of the second year will be made three hours. Beginning with 1951-52 the pharmacognosy course will be given in the third year as a year course of 3 hours lectures and recitations and 6 hours laboratory.

Pharmacy students are very grateful to the United States Information Service for the gift books which they received. Every student of the third and fourth classes received one copy of the U.S.D. 23rd ed, the best six students of the first and second classes also received one copy of the U.S.D. In addition, students who did not receive the U.S.D. received copies of both the N.F. VII and the U.S.P. XII. The Faculty also received copies of these books.



ALUMNI NEWS

Mr. A.G. Vlamos ('10) of Piraeus wrote recently to say that he hopes to visit A.U.B. and the School in the near future. He has been corresponding with Prof. Haddad to learn the news of the School.

Mr. Nessib Nassar ('32) opened his own pharmacy at Dick Station in Beirut.

Mr. Suhail Halabi ('36) is now in Beirut working for Khalil Fattal & Sons.

Mr. Krikor Juljulian ('36) owner of Juljulian Pharmacy in Aleppo has been keeping us in touch with the following Alumni now also in Aleppo : **Messrs. George Adrouny** ('40), **Zaven Matossian** ('44), **Bishara Azzam** ('44), **Yacoub Nazarian** ('11), and **Nur-ud-Din Issa** ('44).

Mr. Tanas Atalla ('37) opened a drugstore in Beirut in the name of Atalla and Touma.

Messrs. Vahé Jebajian ('38) and **Fuad Abi Ajram** are partners operating their new pharmacy « Abi Ajram's Pharmacy », Bichara el-Khourri Street, Beirut.

Mr. Hassan Hassan ('38) has left the University Pharmacy to open his own pharmacy in Rue Bliss across the street from Post Hall.

Mr. Yusuf Abu Dabbeh ('40) is working as a pharmacist with the government of Kuwait.

Mr. George Passaris ('41) is now in Rockhampton, Qld., Australia.

Mr. Joseph Kronfli ('41) has written recently to say that he is enlarging his pharmacy in Khartoum. He is a regular subscriber to the **Apothecary**. Also in Sudan are **Messrs. Wadi' Shoucair** ('35), **Adli Suleiman** ('45), **Shafik Habashi** ('44) **Ibrahim Mukhayyar** ('37), and **Yusuf Badri** ('37).

Mr. Issah Salah ('43) has two pharmacies in Ramallah.

Mr. Khalid Abu Khadra ('44) is working in a hospital in Gazza. Also working in Gazza in their own pharmacies : **Messrs. Victor Kuffa** ('46) **George Fishmawi** ('46) and **Munib Abu Gazaleh** ('33).

Messrs. Nazim Sukhn ('44) and **Abdul-Ghani Anabtawi** ('49) operate jointly their Al-Razi pharmacy in Nablus.

Mr. Adli Farag ('44) is a pharmacist in the Egyptian Army in the rank of a commissioned officer. He lately bought the Royal Pharmacy in Heliopolis.

Mr. Emile Fahmy ('45) is now working for the British Drug Houses, Beirut. On December 28, '49, Blanche was born to Mr. and Mrs. Fahmy.

The following are in Cairo : **Messrs. Ghalib Hidayat** ('45), **Ribhi** ('36) & **Mamduh Mughrabi** ('45) and **Ibrahim Tarazi** ('45).

Mr. Radi Shakhashir ('45) is in Amman operating Raghdan Pharmacy. **Mr. Daoud Shakhashir** ('45) is in Nablus.

Mr. Garabed Demerjian ('46) is now in charge of Louis Pharmacy in Aleppo.

Mr. Aftim Acra ('46) is in charge of the clinical biochemistry laboratory in Van Dyke Hall. **Mr. Hanna Doany** ('44) is instructor in the Biochemistry Department. He also assisted in the laboratory of Inorganic and Drug Chemistry. **Mr. Elias Shammas** ('47) is teaching at the Preparatory School of A.U.B. **Mr. George Brussalian** ('45), is still teaching at the American Community School in Beirut.

Miss Danuta Kazatel ('47) and **Miss Helen Perucka** ('49) left on December 19, 1949 to England on the same boat. Both are apprentices in two London pharmacies fulfilling the required six months practice before they can take their licensing examination.

Mr. Assadour Gulvartian ('47) is now the proprietor of Pharmacie Idéale in Beirut.

Mr. Ramiz Afifi ('47) is teaching at the Western Intermediate School in Baghdad, Iraq.

Mr. Samih Na'mani ('47) is still working with the Imperial Chemical Industries, Beirut.

Mr. Louis Haidar ('47) of Dar-Es-Salam, Tanganyika and **Mr. Hrant Seraydarian** ('38), of Aleppo, are both married now.

Mr. Wajih Mishriki ('47) is now working at Pharmacie Mondiale, Cairo. (The cover picture of this number of the Apothecary was drawn by him when he was a Senior student).

Mr. Fuad Hamdan ('47) is now in Kuwait in charge of a private pharmacy.

Miss Maria Michajlow ('48) is in Montreal, Canada, working as an apprentice until she can obtain the licence to practice.

Mr. Najib Jamal ('48) and Mrs Jamal received on Christmas eve a little baby boy Sary-Shukry from Santa Claus.

Mr. Yahya Fakhouri (48) is working with Trans-Mediterranean, Beirut.

Miss Ludmila Kregiel ('48) is studying for her Ph. D. in Maryland School of Pharmacy, Baltimore, Ohio.

Miss Ursula Zalot ('48) has obtained licence to practice pharmacy in England where she is now actively engaged in the practice of the profession and is receiving good pay.

Mr. Wasfi Awn ('48) opened a drugstore in Tripoli.

Mr. Torkom Kalbian ('48) has been working as a pharmacist with the Red Cross in Damascus. Same for **Mr. David Farsoun** ('49) who is working in Tyre.

Miss Julia Federowicz ('48) writes from Dunnville, Ontario, that she is working in a doctor's office, taking care of his dispensary and doing blood analysis and X-ray work in which she had taken some special training. She expects to obtain a licence to practice pharmacy after completing her 18 months of apprenticeship.

Mr. Zuhayr Annab ('48) is still working at Altounian's Hospital, Aleppo.

Mr. Hanna Araj ('48) writes from Beit-Jala, the Jordan: «I am running a dispensary at Beit-Jala, responsible pharmacist of a pharmacy at Hebron, and teaching chemistry at the secondary school of Al-Ummah College, Bethlehem». He further sends us news about the following: **Mr. Nizar Jardanah** ('48) is running a drugstore at Amman and is the agent for Theraplix and Wallace. **Mr. Antoine Massad** ('48) is the responsible pharmacist for Al-Shaab Pharmacy in the old city, Jerusalem. **Mr. Alex Hanania** ('44) is running a pharmacy of his own in Jerusalem and also teaches chemistry at the Frères School in the same city. **Mr. Haigazoun Kaladjian** ('48) is the responsible pharmacist for

Tutinjian Pharmacy, Jerusalem. He is also a sub-agent for some dental preparations. **Mr. Nubar Arsenian** ('35) is pharmacist of the Red Cross at the Augusta Victoria Hospital, Jerusalem. He is also X-ray technician at the same hospital. **Mr. Yacub Tlil** ('39) is now the manager of Halabi Drugstore at Amman.

Mr. Amin al-Sus ('49) is in Dhahran working with Aramco.

Mr. Mundhir Shabib ('49) is in Riyad as a pharmacist with the Saudi Arabia government.

Mr. Othman Kanafani ('49) is teaching at the Makased School in Sidon.

Mr. Adib Bashshour ('49) is at present working in the Sterile Solution Room of the A.U.B. Hospital.

Mr. Barkev Mugrditchian ('49) opened his own pharmacy in Rue Omar Ben-Abdul-Aziz, Ras Beirut.

Mr. Adib Jidawn ('49) Assistant University Pharmacist, is leaving us to work with the house of Frosst & Co. (E. Ferjan, Beirut agent).

Mr. George Tarazi ('49) is operating Husseini's Pharmacy in Jerusalem.

Mr. Abdul-Rahman Kadri ('49) now operates his own pharmacy in Nablus.

IN MEMORIAM

We announce with deep regret the passing away of **Mr. George Elias Bikhazi** ('12) last April in Beirut.

Mr. Hilmi Tazziz ('45) — We are very sorry to report the passing away of Mr. Tazziz, in Jerusalem.

We have learned with great chagrin the passing away of the young wife of **Mr. Hagop Shirinian** ('45). To him we tender our deepest sympathy.



THE LIGHTRE SIDE OF LIFE

Four Years in the School of Pharmacy

Seventeen years of age, when I was to be,
Chemistry was the course that attracted me.
Hand in hand went Physics & Biology;
Oh: last but not least, a course in Pharmacy.

Organic Chemistry, Pharmacognosy;
Long live long names & strict terminology;
Over-time labs in Qualitative Chemistry;
Farewell to you Systematic Botany.

Physiology & Microbiology,
Hygiene, Pharmacy & Pharmacognosy
Are the toughest courses in Pharmacy;
Resting hour: lab in Organic Chemistry.

Many like Commerce & Pharmacology;
All should take Jurisprudence & History.
Christ help in Ethics & Biochemistry;
Yet: "What is our status in society?"

M. Bezirganian - Pharm. III

A Proposed P. I. Monograph

Official Name - LOVE
Latin Name - AMOR
Local Synonyms - AMOUR, AL-HOUB

Description: A highly contagious disease epidemic at puberty, endemic in teen-age, and pandemic in old age. Is highly intoxicating and habit forming. Susceptibility of both sexes approximately the same, that of males more pronounced. Vaccines ineffective.

Symptoms: Unusual tolerance to almost all the discouraging responses of the antigen, followed by manifestations of delirium in the form of undue anxiety and sentimentalism.

Habitat: Heart.

Constituents: All sorts of important nonsense; including letter writing and crying.

Standards of Assay: In male: financial ability; in female: beauty.

Acid-insoluble Ash: Fate of love letters.

Impurities: Traces of former experiences.

Other Foreign Organic Matter: Competitors and parasites.

Action: Powerful cathartic of celebrity.

Dose: A draught exerts a powerful action, though cases of overdosage are not unknown.

Antidotes: A marriage certificate or a divorce paper have been the suggested ameliorative measures under investigation for the last hundred centuries.

Discoverers: Mr. Adam and Mrs. Eve Adam.

References: Human Life.

H. Dürüst - Pharm. III

PHARMACY II - In GENUINE ACTION

1. Pharmacognosy

- Q. - What happens to ergot, when it deteriorates ?
A. - It will be pharmacopoeal no more.

2. Pharmaceutical Botany

Technically,

- Q. - What part of the apple do you eat ?
A. - Sorry, Sir, I don't eat apples,

3. Pharmacy

- Announcement : There will be an hour quiz on Saturday, February 25th. Any objection ?
Student : Yes, Sir, I have a date :

4. Qualitative Analysis

- Student : In testing for the Ammonium ion, Ammonia is added to render the solution alkaline.....

Thabit Dajani - Pharm. II

REPORT OF ANALYSIS

For - Mr. Third Year Student
On - His Inorganic Lab. Time

Running after reagents	12%
Queries to the instructor	18%
Balance Room Dilemma	5%
Repetition	1%
Cleaning Desk Tops	3%
Roaming around	20%
Lost, in escaping early	10%
Cooperation, collaboration, etc	30%
Unknown exchange possibilities	1%
	<hr/>
	100%

Mr. Ph. C., Apothecary Analyst,
April 1, 1950.

WHAT THEY HAVE COME TO MEAN

SHAKE LABEL	— to save trouble
AS DIRECTED	— not my business
PHARMACOPOEA	— book on the shelf
TEXTBOOKS	— golden age of pharmacy
ROUTINE	— proprietary advertisers
NARCOTICS	— extra bureaucracy in pharmacy
COLLYRIUM	— only solution to be filtered
PRESCRIPTION	— hieroglyphics
DIPLOMA	— "Open sesame"
INSPECTOR	— unexpected intruder

H. D.



PICTURESQUE SPEECH OF IIIrd. YEAR

«Sympathetic - parasympathetic»	—	Physiology
«Stability - incompability»	—	Pharmacy
«Immunity - Pathogenecity»	—	Microbiology
«Reading - Writing»	—	Library Practice
«Ameliorative - Preventive»	—	Hygiene
«Precipitation - Dessication»	—	Pharm. Chem. Lab.
«Synthesis - Analysis»	—	Inorganic Pharm. Chem.
«Structural Empirical»	—	Organic Pharm. Chem.
«Collection - Adulteration»	—	Pharmacognosy
«Eyepiece - Nosepiece»	—	Pharmacognosy Lab.
«And then, there were none»	—	Botany Courses

H. D.

PLANTS THEY LIKE

Prof. Haddad	—	Laurus nobilis (laurel)
Prof. Abou Chaar	—	Digitalis ferruginea (Tron Foxglove)
Prof. Istfan	—	Coffea arabica (coffee plant)
Mr. Verporian	—	Saccharum officinarum (sugar cane)
Mr. Karamanukian	—	Nicotiana tabacum (tobacco)

They were working on Cyanometry

H. - What happens if I swallow this bottle of KCN ?

B. - Nothing... you would only remain in your place.

Third Year Men were working on Iodcform

Prof. **Abou Chaar** - "... it has a strong persistent odor..."

(students start sniffing their samples)

Prof. **A. C.** (continues calmly) "... naturally it isn't a good perfume..."

IN ORGANIC PHARM. CHEM. LAB.

Faydi takes a bulky sample of sucrose and promptly delivers it into his mouth for utilization by his body)

Prof. **Abou Chaar** - Hey, what are you doing ?

Faydi checks on the label of the sucrose bottle to make sure, then continues peacefully)

T. Faydi - Just improving the taste of my mouth, Sir.

IN PUGLIC HEALTH :

Dr. Shakhshiri - Talking on air conditioning, reminds me of the story of two persons spending the night in the same hotel room. One found the weather too cold and the other too warm, therefore, opening or closing of the windows became a point of controversy. Well, after a lot of trouble, one took his shoe and threw it, shattering the glass to pieces. Thus, one felt at ease and the other froze to death. Next morning they found out that the mirror was broken !



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MDR = Minimum Daily Requirements.

*Need in human nutrition not established.

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CORRIGENDA

page 5 - Mr. R. Karamanukian read Mr. L. Karamanukian
 page 44 - article by E. Vorperian, Ph. C. 44.

PIECES OF HAPPINESS

Happiness is like a crystal,
Fair and exquisite and clear,
Broken in a million pieces,
Scattered far and near,
Now and then along life's pathway,
Lo, some shining fragments fall,
But there are so many pieces,
No one ever finds them all.

You may find a bit of beauty,
Or an honest share of wealth,
While another just beside you
Gathers honor, love, or health.

Vain to choose or grasp unduly,
Broken is the perfect ball,
And there are so many pieces,
No one ever finds them all.

Yet the wise, as on they journey,
Treasure every fragment clear ;

Fit them as they may together,
Imaging the shattered sphere,

Learning ever to be thankful,
Though their share of it be small,

For it has so many pieces,
No one ever finds them all.

— *United Benefit News*

SUCCESS

A man is successful when he refuses to slander even his enemies; when he does not expect to get good pay for his services; when he does not wait until tomorrow to do the things that he might do today; when he is loyal to his employer, and not false to the ones with whom he works; when he intelligently cooperates with the other members of the organization; when he is studying and preparing himself for a higher position with better pay.

— *The Silent Partner*

Co-operation would solve most of our problems. For instance, freckles would be a nice coat of tan if they would get together.

Parts Pups

COUNTERPOINT

Every man has a larger chance in the world than he ever takes. Here are three rules to avoid failure: Worry less, work more; waste less, give more; preach less, practice more.

— *J. R. Miller*

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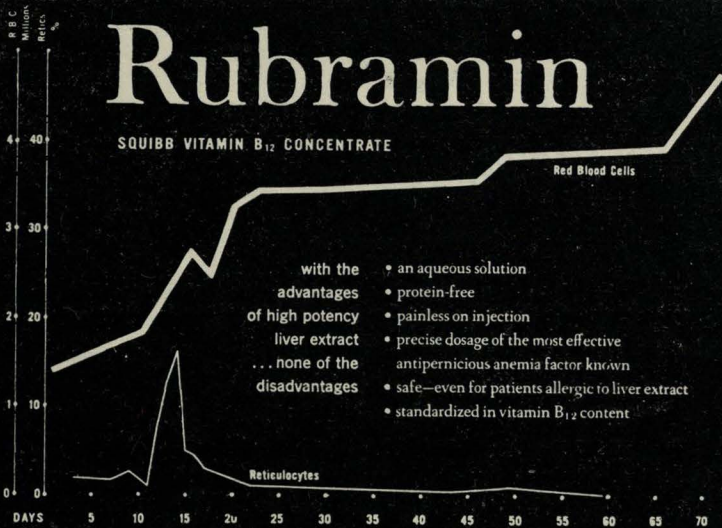
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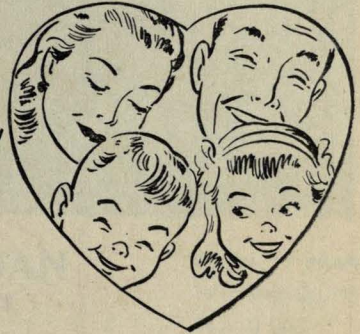
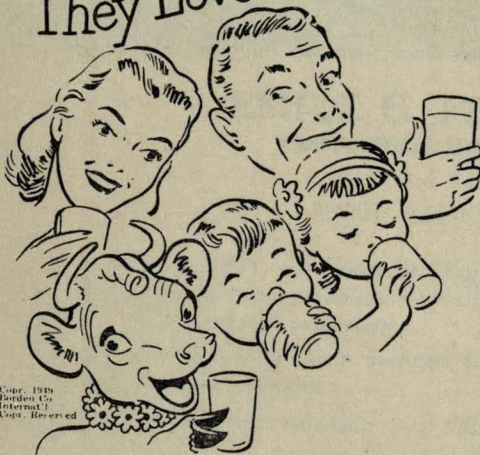
P. O. B. 581

He Loves his wife



his wife Loves him

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says ELSIE the BORDEN cow

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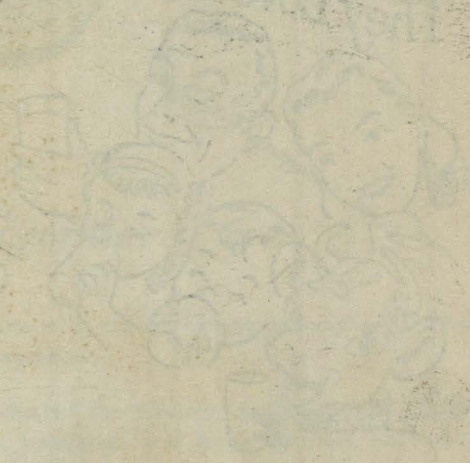
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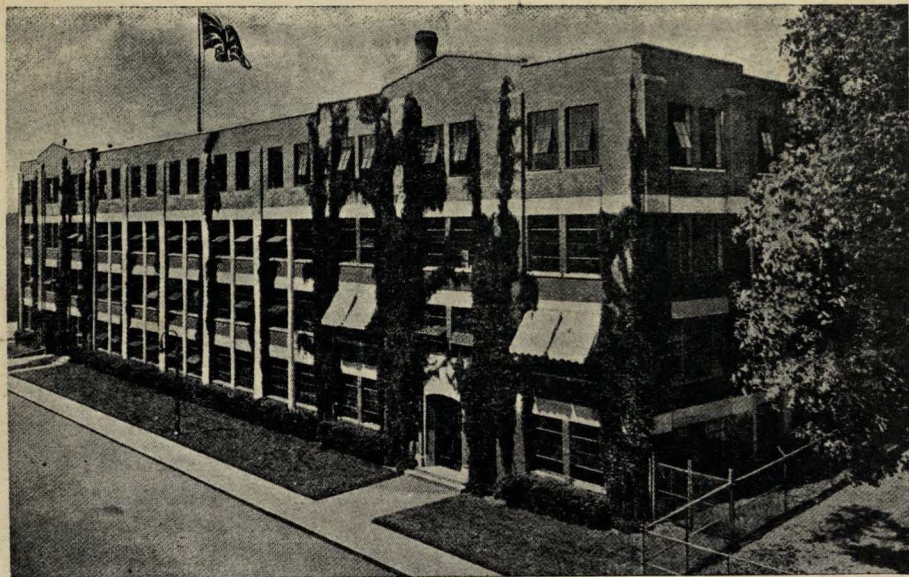
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