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88th Congress }
1st Session }

COMMITTEE PRINT

DRUG LITERATURE

REPORT

PREPARED FOR THE

STUDY OF "INTERAGENCY COORDINATION IN
DRUG RESEARCH AND REGULATION"

BY THE

SUBCOMMITTEE ON REORGANIZATION AND
INTERNATIONAL ORGANIZATIONS

OF THE

SENATE COMMITTEE ON GOVERNMENT
OPERATIONS

A Factual Survey on "The Nature and Magnitude of Drug
Literature" by the National Library of Medicine



AUGUST 30, 1963

Printed for the use of the Committee on Government Operations

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WASHINGTON : 1963

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DRUG LITERATURE

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DRUG LITERATURE

Introductory Statement by Senator Hubert H. Humphrey, Chairman, Senate Subcommittee on Reorganization and International Organizations

This committee print is submitted as a reference tool.

It is designed as an aid to the subcommittee's study of "Interagency Coordination in Drug Research and Regulation." This study is being conducted pursuant to Senate Resolution 27, 88th Congress. That resolution, like a series of earlier authorities, authorized broad studies of "interagency coordination, economy, and efficiency."

Coordination is, of course, impossible without effective mobilization, exchange, and use of information.

PROBLEM OF "KEEPING UP WITH THE LITERATURE"

Actually, "keeping up with the literature" is a universal problem in the pharmaceutical, as in other, sciences. The problem confronts all persons and organizations concerned with the healing arts—including Federal employees and organizations. From the standpoint of the Senate Committee on Government Operations, the interest of agencies in the executive branch is naturally of special concern. These agencies spend over \$150 million a year for four types of drug programs. The programs include (a) drug regulation, e.g., the Food and Drug Administration and the Division of Biological Standards of the National Institutes of Health; (b) drug research, e.g., the National Institutes of Health and the Veterans' Administration; (c) drug purchases, e.g., the hospital systems of the Veterans' Administration, the Public Health Service, and the Department of Defense, and, for oversea use, the Agency for International Development; (d) drug use in preventive, curative, and restorative medical care programs—the three Federal hospital systems.

BACKGROUND TO PART 1 ON DRUG LITERATURE

Analysis of drug literature is but the latest phase in this subcommittee's continuing review of problems of information which prevail throughout all of science.

For 6 years the overall information problem has been studied by the Senate Committee on Government Operations as a whole, and by this subcommittee in particular. Findings of our studies have been issued to date in numerous hearings, committee prints, reports, documents, and processed releases.¹

The present publication is the first exclusively devoted to drug literature, as such.

¹ For background to the subcommittee's overall study of scientific and technical information, see Senate Committee on Government Operations, Subcommittee on Reorganization and International Organizations, "Interagency Coordination of Information," hearing, September 21, 1962, pt. 1, exhibit 1, pp. 4-20.

For a list of publications issued by the committee and by the subcommittee, see Senate Committee on Government Operations, Subcommittee on Reorganization and International Organizations, "Interagency Coordination in Drug Research and Regulation," hearings, pt. 2, exhibit 95, pp. 588-591.

SURVEY DELEGATED TO NATIONAL LIBRARY OF MEDICINE

The subcommittee knew that a panoramic look by an independent source at the drug literature problem would prove helpful to completion of our overall mission.

Accordingly, the subcommittee called on an organization uniquely qualified to make such an examination—the National Library of Medicine.

This great institution responded, helpfully and promptly.² Its survey is reprinted verbatim (with the exception of a few appendix-type materials, which the library had submitted for our background study).

The survey is the work of Winifred Sewell, Deputy Chief, Bibliographic Services Division of the National Library of Medicine. I should like to express my appreciation to her and to the many other members of NLM's staff who provided such competent service.

FACTS REGARDING THE LIBRARY'S SURVEY

A few facts should be borne in mind concerning this survey:

a. The library was asked for but a brief summary. The survey, itself, therefore, is only 39 pages long. The remainder of the volume consists of appendixes and the index.

b. Only a relatively brief time was available for the survey's preparation. The reason is that the subcommittee has only a relatively short period available for the overall drug study. Thereafter other issues will require our attention.

c. The survey is on literature, i.e., on recorded information, usually in its printed form. The survey refers only briefly to spoken information, per se—spoken, for example, between physician and pharmacist, physician and nurse, physician and patient, physician and detailman (pp. 37-38), or researcher and researcher.

d. The survey contains only a brief conclusion by Miss Sewell (p. 39).

BRIEF SUMMARY OF SURVEY'S FINDINGS

Each reader of the NLM survey will naturally tend to review it from his own particular standpoint. What appears "significant" in the survey to one reader may appear relatively "minor" to another. If one were, however, to attempt a brief summary of the survey's findings from the viewpoint of the Congress, the following 15 points would, I believe, be included:

1. Drug literature is vast and complex. The very problem of defining what constitutes the literature is difficult.

2. Depending on definition, the literature may be said to include primary journals, abstracting and indexing publications, books (including compendia), monographs, patents, proceedings, reviews, package inserts, as well as such related forms as house organs, newsletters, promotional literature, analyses by consultant services, et cetera.

3. Many sources are responsible for drug information media, services, and tools. These sources include governmental and inter-

² For further background to the origin of this report, see the subcommittee's exchange of correspondence with Frank B. Rogers, M.D., Director, National Library of Medicine, in a supplement to this statement p. VIII.

governmental organizations, pharmaceutical companies, professional and trade societies, universities, foundations, and other not-for-profit sources, commercial publishers, consultants, and others.

4. Drug literature is growing rapidly in size. It is also increasingly complex, i.e., interdisciplinary and interprofessional in nature. Thus, drug information "sprawls across" many professional journals of the most varied types.

5. Literature on drug research is growing particularly rapidly, as Federal and private support of research mounts.

6. Literature of interest to the pharmaceutical educator is increasing. Effective management of this literature poses many problems.

7. Literature on clinical experience with drugs is sizable and is growing. Its effective use by the practitioner offers many difficulties.

8. There is, thus, a wide array of specialized audiences interested in various phases of drug literature. The interests tend to overlap, but specialized problems arise in connection with each audience's attempt to use that portion of the literature which is of particular interest.

9. Many significant innovations have been and are being made in drug documentation and information systems.

10. Competent evaluation of masses of drug information is particularly necessary.

11. Confusion over a multiplicity of drug names for the same compound continues to handicap the pharmaceutical and documentation sciences.

12. Drug literature, like other scientific literature, is international in origin and use; international teamwork is therefore essential in dealing with literature problems.

13. It cannot be assumed that the world's "principal" journals on drugs can be relied upon for "adequate" coverage; case studies prove that many references appear in what might otherwise be termed "obscure" journals.

14. Much important drug information is not "published"; information on adverse reactions to drugs, much of which is not published, is a leading example.

15. There is no simple or single solution to the "problem" of drug literature because it is really a complex of problems, requiring a complex of efforts.

It is at this point that the NLM survey concludes.

EVALUATION OF THIS AND OTHER MATERIALS

Finally, the subcommittee's own evaluation will begin where this and other materials leave off. In the subcommittee's evaluation, it will examine facts gathered throughout its study, by this survey, by hearings, staff analyses, correspondence, visits, and other means. The subcommittee's evaluation will, of course, extend over a much broader area than the NLM survey—it will include, for example, the Federal agencies' own internal information systems, as well as inter-agency information exchange, and it will cover many other forms of drug knowledge, including unpublished information, rather than "the open literature" alone.

SUPPLEMENT TO SENATOR HUMPHREY'S STATEMENT: TEXT
OF EXCHANGE OF CORRESPONDENCE WITH NATIONAL LIBRARY
OF MEDICINE

DECEMBER 11, 1962.

Dr. FRANK B. ROGERS,
Director, National Library of Medicine,
Bethesda, Md.

DEAR DR. ROGERS: Following up on the subcommittee's hearings of August 1 and 9, 1962, I should like to ask the cooperation of the National Library of Medicine in preparing an analysis on the theme, "The Nature and Magnitude of Drug Literature."

The analysis would include: Quotation of the views of authorities within and outside the Government, together with statistical and descriptive data, as to the types and quantity of (a) published and (to the extent material is available) (b) unpublished information, on drugs.

The purpose in making this request is to secure for purposes of publication an account which may be useful to the Congress and the healing arts for both background and understanding.

Essentially, we are interested in this information as it may shed light on the problem of "keeping up with the literature." I refer to the problem as it confronts, in particular—

- (a) Basic and applied drug researchers;
- (b) practicing physicians, including—
 - (1) General practitioners;
 - (2) Specialists in a few of the larger fields, such as pediatrics, obstetrics and gynecology, etc.

The summary should specifically include authoritative quotations and an analysis as to the problem of keeping up with published and unpublished information on adverse drug reactions.

The national library should feel free to draw up the summary in whatever format, length, and depth it believes appropriate and feasible in time for transmittal by early February 1963.

The library is free, and indeed is urged, to inform interested sources as to this request, so that the cooperation of any and all expert groups—within or outside the Government which might be interested in providing assistance—can be enlisted.

In particular, I would hope that the Food and Drug Administration, the National Institutes of Health, the American Medical Association, the Pharmaceutical Manufacturers Association, the American Pharmaceutical Association, among others, might be invited, if only informally, to furnish whatever suggestions they and NLM might regard as feasible within the relatively limited time available.

The library is invited to express any judgment of its own which it may wish to present on the subject, or, if it so desires, merely to quote the judgment of others, as already expressed within the literature. (It is recognized that time would not be available to invite detailed new judgment on the part of representative authorities.)

If there are any questions, please do not hesitate to make inquiry of my office or of the subcommittee staff.

Thank you for the cooperation which has already been repeatedly and valuably extended to the subcommittee.

Sincerely,

HUBERT H. HUMPHREY,
Subcommittee Chairman.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
NATIONAL LIBRARY OF MEDICINE,
Bethesda, Md., December 17, 1962.

DEAR SENATOR HUMPHREY: This morning I met with my chiefs of division to confer on your request that the National Library of Medicine prepare an analysis on the theme "The Nature and Magnitude of Drug Literature." We were all

agreed that this is a difficult assignment, especially within the timespan proposed. But we will undertake it and have allotted our human resources accordingly. We will put forth our best effort and hope that the result will measure up to your expectation.

Sincerely yours,

FRANK B. ROGERS, M.D.,
Director, National Library of Medicine.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
NATIONAL LIBRARY OF MEDICINE,
Bethesda, Md., February 21, 1963.

DEAR SENATOR HUMPHREY: I am attaching copies of the report entitled "The Nature and Magnitude of Drug Literature," which represents the National Library of Medicine's response to your request of December 11, 1962. I hope we have correctly interpreted your requirements, and that your committee will find the substance of this report useful in its further deliberations.

As you requested, during the preparation of this report we have been in touch, through personal visitations, with officials of Biological Abstracts, Chemical Abstracts, Institute for Advancement of Medical Communication, Institute for Scientific Information, Pharmaceutical Manufacturers Association, American Pharmaceutical Association, American Medical Association, and Food and Drug Administration. We wish to acknowledge the many contributions of these organizations in helping us to uncover portions of the data included in this report.

The report is primarily the work of Miss Winifred Sewell, Deputy Chief, Bibliographic Services Division, National Library of Medicine. While other staff members participated in gathering information, running down references, offering criticism of various sections, and the like, only Miss Sewell's extraordinary, devoted, and untiring efforts, and her outstanding background and experience in this particular field have permitted the preparation of this report within the stringent time limitations.

Sincerely yours,

FRANK B. ROGERS, M.D.,
Director, National Library of Medicine.

APRIL 3, 1963.

Dr. FRANK ROGERS,
Director, National Library of Medicine,
Bethesda, Maryland

DEAR DR. ROGERS: This has been my first opportunity to express the subcommittee's appreciation for the excellent report furnished so promptly by the library on "The Nature and Magnitude of Drug Literature."

I feel confident that the report's publication as a committee print will now serve a very useful purpose for the Congress, for the scientific community, and for interested laymen.

I should like to extend a cordial invitation to the library to supplement the report with a statement of its own which might be incorporated as an additional appendix to the print. This statement would be devoted to the past, present, and future activities of the library itself with respect to the management of published drug information.

I believe that the scientific community, by and large, appreciates the extremely significant contributions which have been made by the library down through the years and the enormous potential through MEDLARS—for drug information and innumerable other purposes. A statement on your part would, I believe, help to round out the overall report. It would provide information of the type which the Congress, the professions, and the general public should have available on NLM's own central role.

It would be particularly helpful if you might provide us a brief "preview," if that is at all feasible at this early date, as to what NLM's role might be (subject to the decision of the Surgeon General) in relation to the proposed National Drug Information Clearinghouse.

Looking forward to hearing from you further,¹ I am,

Sincerely,

HUBERT H. HUMPHREY,
Subcommittee Chairman.

¹ The statement, as requested, by the National Library of Medicine, appears herein as appendix H.

SECTION 1

THE NATURE AND MAGNITUDE OF DRUG LITERATURE

To describe the nature and magnitude of the drug literature is a little like trying to describe the nature and magnitude of the fleas on a mongrel while pursuing him down a dark alley. The simile is not entirely appropriate, however, because there is a certain uniformity among fleas, whereas in the drug literature we are dealing with a wide variety of forms and kinds of publications, diverse subject matter, a field in which national boundaries are transcended, and one that is constantly changing. A number of the items included in this report were obtained prior to their publication, and others came from personal communications; some services that are mentioned are still in the planning stage, yet there is no assurance that some of the information will not be out of date next month. Because of this fluidity, and because of the variety of people and groups interested in drugs and publications about them from one or another point of view, it is virtually impossible to assure that the picture here presented is complete. But this report should give a broad overview that will suggest both the complexity of the problem and the tremendous amount of continued concern and effort toward its solution.

If one considers all the literature of interest to those who develop drugs and to those who use drugs as modalities, then the pharmaceutical literature is nearly the sum of all medical and chemical literature plus much other social, economic, and scientific material. Dr. Langlykke (appendix A 1) has defined drug literature as "any published papers on preparations with potential therapeutic or diagnostic activity, either natural or synthetic." He points out that "these papers could cover any aspect of these preparations, such as chemistry, pharmacology, market potential, nomenclature, clinical investigation, toxicity, methods for compounding, storing and dispensing them, etc." He includes the application of pharmaceutical preparations for non-therapeutic uses, such as the agricultural use of antibiotics, and mentions interest in basic physiological mechanisms which might potentially be controlled by drug or enzyme activity. Though such matters are of fundamental interest, for purposes of this paper we have had to use a much narrower definition; by our definition, a paper in synthetic chemistry or one on screening a group of chemicals for carcinogenic activity becomes a part of the "drug literature" at that point when one of the chemicals synthesized or screened attains interest as a diagnostic or therapeutic agent.

But even this definition is not so simple as it may seem, for we are faced with the question: "What is a drug?" If we limit ourselves to products that are marketed for therapeutic or diagnostic use somewhere in the world, we overlook all those materials that are in process of development and clinical investigation. But if we include any chemical with physiologic activity, we include almost all chemicals. Sulfuric acid has strong physiologic action on the skin, yet it would

scarcely be considered a drug. Section 210(g) of the Federal Food, Drug, and Cosmetic Act says: "The term 'drug' means (1) articles recognized in the official United States Pharmacopoeia, official Homeopathic Pharmacopoeia of the United States, or official National Formulary, or any supplement to any of them; and (2) articles intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals; and (3) articles (other than food) intended to affect the structure or any function of the body of man or other animals; and (4) articles intended for use as a component of any articles specified in clause (1), (2), or (3); but does not include devices or their components, parts, or accessories."

We have attempted to confine our study to literature on drugs as defined by the act. Even so, it should be clear that the "drugs" we are concerned with are widely varied. The American Pharmaceutical Association¹ has recently listed the following types of drugs: narcotics, prescription legend drugs, investigational drugs, and nonprescription drugs. Each is carefully defined and may include subclasses. It is apparent that the literature on each of these kinds of drug will vary as to place of appearance, volume, approach, and audience.

The changing character of the drug literature derives partially from the many changes in documentation techniques, but more profoundly from the rapid growth and change in the pharmaceutical field caused by the constantly increasing attention to health problems and the multiplication of amounts spent for research thereon. Within the pharmaceutical industry alone, research expenditures doubled between 1956 (\$105,000,000)² and 1961 (\$233,000,000).³ This emphasis is reflected in the number and changes in category of new drugs introduced over the past 20 years.⁴

Limiting the scope of the drug literature still leaves us with a wide variety of subjects. One source⁵ says "An investigator or clinician interested in the role of vitamins in nutrition may find the pertinent publications on one specific problem scattered through journals of botany and plant physiology, experimental biology, microbiology, bacteriology, physiology, chemistry and biochemistry, or in organs devoted to various clinical specialties, as cancer, dermatology, endocrinology, pediatrics, nutrition." In discussing searching in the pharmaceutical literature, Oatfield and Emilio⁶ suggests that "a problem relating to the properties of propellants may take one into the classified abstracts section of the British Interplanetary Society Journal after Chemical Abstracts and the Engineering Index have yielded up their leads * * *"

In describing the literature of hospital pharmacy, Don Francke⁷ says "it encompasses the literature of pharmacy which in itself is as diverse as the basic sciences which underlie it." But even when he limits the subject to pharmaceutical practice peculiar to hospitals, "there is overlapping because the basic ideas used in hospital practice find their counterparts in numerous other fields. * * * An article on the degradation of glucose solutions or one on the stability of alkaloids

¹ Mimeographed document from American Pharmaceutical Association.

² New Medical Matera 1: 22, Apr. 1959.

³ Drug Trade News 36: 25, Aug. 7, 1961.

⁴ Kramer, Lucy M., Drugs and medicines, Public Health Reports 73:929-939, Oct. 1958.

⁵ American Foundation. Medical research: a midcentury survey. Boston, Little, Brown, 1955, vol. 1, pp. 705-706.

⁶ Oatfield, Harold and Emilio, Betty Reynolds, Some aspects of searching in the pharmaceutical literature: reference fringe benefits, American Documentation 9: 238-272, Oct. 1958.

⁷ Francke, Don E., The written word, American Journal of Hospital Pharmacy 18: 3, Jan. 1961.

after sterilization, for example, are not limited to hospital pharmacists in their usefulness * * *

A glance at the journals cited under a particular drug name in any of the abstracting or indexing journals will reveal that almost any drug is being written about in many countries. Opening the January 1963 Index Medicus at random, we note that the 13 papers listed under Imipramine come from Scandinavia, Australia, France, United States, Switzerland, New Zealand, Germany, and England. This transcendence of geographic boundaries is to be expected in a field involved with curing of human ills. A recent list of Single Chemical Entities Introduced in the United States⁸ contains, in the 540 entities mentioned, 207 that were discovered outside the United States, although extensive work to bring them from discovery to actual market products was done in this country. Countries mentioned as original sources vary from the major European countries to Japan, India, Australia, Mexico, and Argentina.

Drug developments in individual countries also affect the publication pattern. "Usage patterns vary in different parts of the world, so that what is obsolete in one area may yet be favored in another. * * * Needless to say, the state of development of pharmaceutical practice in a country strongly affects drug information dissemination. Interest in a class of products may so strongly influence publication that sources are produced for the whole world to use, as in the case of medicinal plant sources currently being published in India."⁹

International exchange of information specifically on drugs has been recommended for some time,⁹ and is just now undergoing intensive study. Resolutions of the 15th World Health Assembly (May 1962), the 16th Pan American Sanitary Conference (Sept. 1962), and the Executive Board of the World Health Organization (Jan. 1963) have all endorsed the early establishment of a means for exchange of information among countries on serious adverse drug reactions.

The WHO Subcommittee on Non-proprietary Names of the Expert Committee on Specifications for Pharmaceutical Preparations published its first list of proposed international nonproprietary names in 1953.¹⁰ Since that time, considerable progress has been made toward insuring that papers on drugs will be tied together by a unique and universal nonproprietary name. However, as will be seen from our discussion on drug compendia, it is obvious that much remains to be done.

⁸ deHaen, Paul, Review of drugs, 1941-1961, Washington, D.C., Pharmaceutical Manufacturers Association 1962, mimeographed; see also Wilkinson, Herbert S., History and evolution of the pharmaceutical industry. In National Pharmaceutical Council, Inc., The workings and philosophies of the pharmaceutical industry, New York, 1959, p. 15.

⁹ McCann, Anne and Boykin, Elizabeth, Pharmacy's maze: a bibliographic approach to the problem of drug information, *Journal Mondial de Pharmacie* 1957-1958: 229-235, July-Aug. 1958.

¹⁰ Proposed international non-proprietary names, *Chronicle of the World Health Organization* 7: 299-324, Oct. 1953; see also World Health Organization, Cumulative list of proposed international non-proprietary names for pharmaceutical preparations; Geneva, 1962.

SECTION 2

SOME RELATED PROBLEMS

It should never be forgotten that many of the complications and complexities of the drug literature are not basic to the literature, but to the field itself. Complicated problems give rise to complicated reports, and incomplete understandings will often underlie the lacunae in reports. The bewildering multifactorial aspects of clinical observations are not made less bewildering by simple transmutation to words on paper.

In 1956, Dr. Ethan Allan Brown published a review on the reporting of drug toxicity¹¹ which describes part of this difficult area. In discussing the quandary of the physician in weighing the dangers of a disease against the dangers of a drug, Dr. Brown says that the physician "must, of course, keep informed of the recent literature concerned with the reactions caused by drugs. His absolute dependence upon such reports of reactions necessitates a critical examination of their nature and adequacy. But, with our present method of reporting toxicity, the clinician faced with a particular patient has neither the information nor the attitude he needs to measure the hazards involved in using modern potent drugs. * * * Anything less than the most carefully thought-through reports of toxicity can either communicate an undue enthusiasm for the drug or an unwarranted fear of its use, or else a swing from one extreme to the other. Such extreme attitudes are both invalid and harmful to our patients, because a drug which has passed through the vicissitudes of optimism and pessimism rarely finds its way back to its exact place in our armamentarium. Both physician and patient are human and, unhappily as seen in medical history, drugs are consistently considered to carry reputations for good and evil, neither of which is related to the facts."

Dr. Brown carefully analyzes all the factors that may confuse the picture in toxicity reporting, and points out problems with various kinds of publication. He mentions epidemiologic studies as a possible source of reliable information, but says "Valuable though these studies may be, they are not clinically significant unless or until the physician has statistical data on the number of patients *exposed* to the drug. * * * Unfortunately, the number of patients who have been exposed to any one drug is not generally available."

He quotes a British Medical Journal editorial:¹² "It seems probable that the variation of incidence of toxic symptoms is a reflection of the difference in the observers, or in the conditions of observations. If so, too much attention should not be paid to the percentage of toxic reactions as an indication of risks of using the drug."

¹¹ Brown, Ethan Allan, The reporting of drug toxicity. *Annals of Allergy* 14: 206-226, Mar.-Apr. 1956.

¹² Toxic effects of phenylbutazone, *British Medical Journal* 1: 1322, June 13, 1953.

With respect to case reports in the medical literature and at medical meetings, he quotes the *New England Journal of Medicine*:¹³ "Unless these reports are carefully considered in context, including such data as the number of patients to whom the drug has been given, the amount prescribed and the number of lives saved, incorrect impressions are imparted to physicians. * * * There is danger in viewing case reports with alarm unless they are sufficiently broad in scope to include the indications, limitations, and contraindications of the drug under criticism. The busy practitioner, with neither time nor facilities to evaluate the broader aspects of one of the newer agents, may be influenced to withhold the drug when it might be sound practice to administer it." In discussing an FDA survey on anaphylactoid reactions to penicillin in 95 hospitals in 11 cities which uncovered 84 such reactions of which 24 were fatal, Dr. Brown says: "Significantly, not one of the anaphylactoid reactions uncovered in the FDA survey had ever been reported in the literature. This suggests that the case report approach, as compared with the large scale survey, is not a good guide in the evaluation of drug toxicity." He points out that different forms of penicillin have different reaction rates, a fact which "has been obscured by references in the literature to 'reactions to penicillin.' * * * The available data on penicillin suggest that, if reporting of toxicity is to serve as a guide to clinical judgment, it is important to do more than collect generic observations on penicillin. It is necessary to know *when* the reactions occurred. Valid and useful data will also be derived from studies which differentiate between the specific drugs and dosage forms, and note the characteristics of the patients, and the reaction rates of different groups of individuals in the patient population."

There are, of course, many papers on the problems of using toxicity data and of clinical evaluation of drugs in general. And a number of groups concerned with these problems have been or are being set up, such as the Public Health Service National Clearinghouse for Poison Control Centers, the FDA Adverse Reaction Program, the AMA's Registry of Blood Dyscrasias, recently expanded to the Registry of Adverse Reactions, and the PMA's Commission on Drug Safety. Except as sources of published information, however, they are outside the scope of this report.

¹³ Pharmaceutical fact and fancy. *New England Journal of Medicine* 248: 1075-1076, June 18, 1953.

SECTION 3

RECOGNITION OF A PROBLEM

With a varied, voluminous, and elusive drug literature, it is not surprising that many people have complained of it. Describing himself as a "layman," David Sarnoff made some dramatic remarks:¹⁴ "The thrust of invention and development has placed us all in an informational pressure cooker, and nowhere is this fact more clinically apparent than in the field of medicine. I am told by a doctor friend that 7 out of 10 prescriptions written today are for items unknown to medicine before World War II. The communications problems that result are more serious here than in any other area, since human health and life itself are involved. * * * No requirement is more fundamental to the research scientist than knowing what has been done in his immediate area and in related areas. Lacking this knowledge, he can grope aimlessly, duplicating the work of others to a wasteful extent. In industry, such duplication costs an estimated billion dollars a year, and the toll is comparable in other fields."

Dr. Modell, in speaking of "the drug explosion" says:¹⁵ "Excessive numbers of drugs are now being introduced—excessive in view of the working capacities of those competent to test their safety and utility in man, excessive in view of the subjects available for the testing of their effects, dangers and uses in man, and excessive in view of the ability of those who must assimilate the essential knowledge and learn how to prescribe them effectively and safely, rationally rather than routinely."

A hospital pharmacist, Dr. Francke, says:¹⁶ "Despite the efforts of the AMA's Council on Drugs, physicians today do not have the help they so desperately need in selecting drugs. How do they select the 'best' drug from among approximately 45 different tranquilizers, 20 psychic energizers, 20 sedatives, 25 antihistamines, 30 antispasmodics, or 30 diuretics available when each is said to be the 'best'?" Until evaluative information is available, he adds, "a larger number of physicians will pride themselves in prescribing the latest drug and the newest combination, thus perpetuating the vicious cycle. No basic progress will be made in correcting this problem until physicians themselves recognize that a problem exists and that they themselves have helped to create it."

¹⁴ Sarnoff, David, Communications and medicine, address before 1961 National Health Forum, Mar. 16, 1961, mimeographed.

¹⁵ Modell, Walter, The drug explosion, *Clinical Pharmacology and Therapeutics* 2: 1-7, Jan.-Feb. 1961.

¹⁶ Francke, Don E., Investigational drugs and drug investigations, *American Journal of Hospital Pharmacy* 19: 511, October 1962.

Turning again to the research scientists, Chauncey Leake remarks:¹⁷ "The flow of new chemical compounds alone, for example, is increasing at a rapid pace. Undoubtedly, many of these compounds are certain to have significant and important biological activity. To screen them effectively, to report them adequately, to judge their indications for medical or other uses satisfactorily, or to appraise them for general use in human welfare appropriately, is becoming a near impossible task."

Price described the complexity of the problem:¹⁸ "We were told that the major problems were between disciplines; and then we were told that until each discipline straightens up its own communications problems, efforts to communicate with other disciplines will lack real meaning. We were told that some of the major problems are between, and involve the relationships between, the basic scientists and the clinical scientists. We were told, at once, that the clinical scientists should, and should not, assume more responsibility for informing the practitioner. We were told that we should be grateful for the work of the detail men from the pharmaceutical houses in keeping practitioners posted on new developments in drug therapy, and then we were told that this is regrettable and risky."

¹⁷ Welt, Isaac D., Index-handbook of cardiovascular agents, Washington, D.C., National Academy of Sciences-National Research Council, 1960, vol. 2, part 1, p. v.

¹⁸ Price, David E., The importance of communications to research in the biomedical sciences, in 1961 National Health Forum on better communications for better health, Mar. 14-16, Preforum materials, New York, National Health Council.

SECTION 4

VARIETY OF AUDIENCES

It is apparent that there are a great many audiences for drug literature. McCann and Boykin, in speaking of drug information, say:¹⁹ "Many, many different people with varied responsibilities in the health field constantly seek such information. Consider, for example, the pharmacist who has to fill a prescription which originated in far-off Jugoslavia, or the physician who wants additional data about a very recent drug mentioned in a current journal, or manufacturing personnel, who must have the very latest information on their own drugs and others of related activity in order to guide the course of a therapeutically active compound from discovery to market. Dentists, nurses, and veterinarians too are qualified users of therapeutic substances. A group growing in importance includes health educators and science writers, who also share the responsibility of getting information to the layman, concerned with disease as a personal problem and with the role of drugs in safeguarding health."

Chemists, biophysicists, pharmacologists, pharmacists, drug manufacturers, general practitioners, specialists, nurses—all these people may be found in various kinds of organizations. They are in government, in industry, in universities, and in foundations; their impression of what is important in the drug literature, or what, indeed, the drug literature is, may vary widely.

The interests of all audiences cannot be covered equally, even though each may have its unique needs. In this report we do not touch on drug literature problems specific to the medical historian, to the veterinarian, or to other specialist groups. It has also been impossible to take up the drug literature which reaches the layman, although the impact of this literature represents a definite problem to the physician. As expressed by Modell:²⁰ "The newspapers, too, especially the Sunday supplements, have a special passion for disclosing undigested information on drugs which have a suggestive design of pharmacologic action, and for presenting them forthwith as having unquestioned clinical utility. Such publicity frequently is followed by public pressure on the medical profession to make premature use of poorly-tested drugs."

¹⁹ McCann, Anne and Boykin, Elizabeth, Pharmacy's maze: a bibliographic approach to the problem of drug information, *Journal Mondial de Pharmacie* 1957-1958: 229-235, July-Aug, 1958.

²⁰ Modell, Walter, The basis for the choice and use of new drugs, *GP* 20: 129-137, July 1959.

SECTION 5

ORGANIZED GROUPS CONCERNED WITH THE DRUG LITERATURE

That the magnitude of the drug literature and its control are of primary importance to a variety of audiences is evidenced by the number of professional groups that have these problems as their basic concern. They are treated separately here because their activities tend to point up major problems and the steps that have been taken to overcome them.

A. PHARMACEUTICAL MANUFACTURERS ASSOCIATION

Research and Development Section, Literature Committee. The Literature Committee was established in 1958 upon the recommendation of Dr. Asger Langlykke in his "Discussion of Pharmaceutical Literature Control" (appendix A 1). Its annual reports (appendix A 2-5) constitute reviews of the developments which affect not only the narrowly defined pharmaceutical literature, but all research literature of interest to scientists in the pharmaceutical industry. It has, in its membership, "deliberately avoided" experts in literature documentation or library methods "in order to maintain a viewpoint * * * of the nonprofessional user of the literature rather than that of the information specialist" (appendix A 2). In connection with the latter approach, they have worked closely with the LABS Committee of Special Libraries Association's Pharmaceutical Section and with other information specialists. For instance, Dr. Alexander Moore spoke at the meeting of the International Federation of Documentation in 1961.

Besides reviewing developments as they occur, the committee has identified major problem areas in scientific literature control and has actively encouraged other groups in their steps toward solutions. The committee has summarized its answer to the question: "What does the pharmaceutical industry need in the way of literature services that it does not already have?" by saying "We need two things very badly. First, we need an alerting service. Our laboratory people need to know scientific information related to their work as quickly after it is published as possible. * * * Secondly, our laboratory people need to have indexes, or punched cards, or magnetic tapes, in order that they may quickly learn whether a specific bit of information which they need exists in the literature or whether it does not. If there is a lag of 3 or 4 years in indexes to the scientific literature, our laboratory people accept this fact and do not complain excessively about it; however, we know, and you know, that their research efficiency is greatly impaired" (appendix A 3). The committee has suggested that "other parts of our scientific community have similar needs. For example, the moneys appropriated by Congress for research in areas related to the development of new drugs and pharma-

ceuticals is larger than the total research expenditures of our whole industry, and this Government-financed research must need information services like those needed by our industry" (appendix A 4). After a formal meeting with representatives of major abstracting and indexing services in 1961, the Literature Committee and the Steering Committee of PMA's Research and Development Section "agreed that we should cooperate with the existing services if they can supply our needs, rather than setting up an American counterpart of the Documentation Ring" (appendix A 4).

In encouraging groups working toward solutions of their literature problems the committee has used a variety of methods, from recommending production of Index Chemicus and urging its support by their member firms to sending comments on index headings of Index Medicus to the National Library of Medicine. At present they are polling technical information departments of member companies on the proposed Chemical Abstracts service, Chemical-Biological Activities (appendix A 5). As early as 1960, the committee reported: "The most significant observation we have made is that the literature services are in a state of flux. They are gradually changing their policies, and we are able to notice a gradual improvement. In this situation, we believe it important for us to keep our needs constantly before these people, to encourage them, and to offer help and support in areas where it is mutually advantageous for us to do so" (appendix A 3).

B. AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

Joint Committee on Pharmacy College Libraries. Though the joint committee is like the Literature Committee of PMA in having as its parent group a society interested in the pharmaceutical literature as users, the membership of the AACP committee is different. This group is composed of two members from the MLA Pharmacy Libraries Group, two from the SLA Pharmaceutical Section, and two pharmacy college professors for the American Association of Colleges of Pharmacy, one of the latter always being chairman. Originally, the committee had been a Standing Committee on Libraries made up of AACP personnel only.

Publications and projects of the committee are listed in a 5-year report ^{20a}. The committee objectives have been "* * * to devise, perfect, and maintain channels for effective cooperation with the organized librarians in colleges of pharmacy in the solution of such problems as specification of qualifications for library personnel, minimum lists of holdings, satisfactory library patterns in different types of institutions and suggestions for developing good library habits in students." Many of the activities have thus dealt with standards and library administration or with education. At the instigation of the committee, courses on Pharmaceutical Literature and Librarianship were presented at Columbia University during the summers of 1957 and 1959. In addition, many journal articles and bibliographies (appendix B, appendix C) have been the concern of the committee, from initiation and review in some cases to encouragement in others.

This committee has expressed problems with the pharmaceutical literature different from those described by the PMA Literature Committee. "Many overseas journals, overseas dissertations, and the less

^{20a} Osborne, George E., Report of the Joint Committee on Pharmacy College Libraries, *American Journal of Pharmaceutical Education* 22: 297-300, summer 1958.

important or most expensive publications here in our own country are increasingly difficult for even a research library to buy and shelve—especially when they are infrequently used though useful. * * * To bring within each region or even within the country all pharmaceutical literature of whatever cost or language that sound scholarly goals would suggest may well ask for more cooperative division of responsibility among libraries than in the past^{20b}.”

C. SPECIAL LIBRARIES ASSOCIATION

Science-Technology Division. Pharmaceutical Section. Another membership group whose primary concern is pharmaceutical literature is the SLA Pharmaceutical Section established in 1947. Its interests have been closely allied to pharmaceutical research, although its membership of approximately 300 includes many pharmacy school librarians and others whose interest is more general. Its major continuing publications are Unlisted Drugs, COPNIP List, published by the Committee on Pharmacomedical Nonserial Industrial Publications, and Drug Information Sources (appendix E). Other publications include a union list of serials in pharmacy libraries (1952) and an imminent directory of pharmaceutical libraries. Its Liaison and Bibliographic Services (LABS) Committee has investigated and evaluated new services for section members and has worked closely with the Literature Committee of the Pharmaceutical Manufacturers Association.

The Pharmaceutical Section has participated in international activities by circulation of the LABS Committee report to foreign contacts and attendance of representatives at international meetings. In 1958 representatives of the Drug Information Sources Committee presented to the International Pharmaceutical Federation Press and Documentation Section a 3-step proposal for international collaboration consisting of “publication of a series of reviews of pharmaceutical activity, country by country, with emphasis on facilities for collecting and publishing drug information; expansion of Drug Information Sources bibliography with representatives of other countries reporting their own publications; and national or regional collection of drug information publications wherever local interests demand it” (appendix A 1). Although no concrete action was taken, contacts made at that time helped in getting additional information on foreign drug sources.

D. MEDICAL LIBRARY ASSOCIATION

Pharmacy Libraries Group. Though the MLA Pharmacy Libraries Group is somewhat similar in membership to the SLA Pharmaceutical Section, it has more representation from medical school and pharmacy libraries so that its major activities have had more educational implications. It was responsible for “Books, Reference Works, and Periodical Literature Recommended for College of Pharmacy Libraries,”²¹ which has subsequently been brought up to date by Mrs. Martha Jane Zachert (appendix B). It also sponsored the prepara-

^{20b} Sonnedecker, Glenn, Report of the Joint Committee on Pharmacy College Libraries, *American Journal of Pharmaceutical Education* 25: 395-396, summer 1961.

²¹ *American Journal of Pharmaceutical Education* 19: 480-499, summer 1955.

tion for publication of the World List of Pharmacy Periodicals (appendix C).

E. INTERNATIONAL PHARMACEUTICAL FEDERATION

Press and Documentation Section and Commission of Pharmaceutical Abstracts. The International Pharmaceutical Federation is made up of "the legally constituted national pharmaceutical associations, federations or societies which represent, in the widest sense, the pharmaceutical corps of the country or Nation."²² Its Press and Documentation Section has "been interested principally in the problems posed by publication in order to be able to put at the disposition of the profession the best possible pharmaceutical press, equally from the point of view of editing, presentation and printing and the problems of documentation generally."²³ It is thus concerned both with the production and the consumption of pharmaceutical literature.

It was at the recommendation of this section and the Scientific Section that a Commission of Pharmaceutical Abstracts was established in 1958 for the "preparation of positive and realistic proposals for discussion by the 1962 assembly, which will result in the compilation of a comprehensive and reliable documentation" (appendix A 9). The commission proposed to publish a pharmaceutical abstracts journal of about 6,000 abstracts a year²⁴ in the fields of "drug formulation, development, stability, sterilisation, pharmaceutical legislation, education and economics" (appendix A 10). Thus it would be limited to that part of the pharmaceutical literature which major scientific abstracting and indexing services cover poorly or not at all. In connection with extensive planning, a world list of pharmacy periodicals was prepared (revised into appendix C) and important periodicals were selected for regular abstracting (see appendix D). In September 1961, after only 2 countries replied to a query of 9 national organizations as to whether they were interested in cooperating, it was agreed "that there was too little interest and that the project had better be given up" (appendix A 10).

F. OTHER MEMBERSHIP GROUPS

Other membership groups concerned with the pharmaceutical literature include the Documentation Center of the GIIP and PIA, Dokumentationsring, and the Alerting Ring. The first is a center just now being established to provide literature information to the member trade associations of Groupement International de l'Industrie Pharmaceutique (from Belgium, France, the German Federal Republic, Italy and the Netherlands) and of Pharmaceutical Industries' Association (from Austria, Denmark, Finland, Great Britain, Norway, Portugal, Sweden and Switzerland).

The Dokumentationsring der Chemisch-Pharmazeutischen Industrie was formed in 1959 and at present has 6 European participants (Ciba, Knoll, Merck, Thomae, Bayer, and Geigy) and one American (Smith, Kline and French). Its purpose is "to provide for its members a *current*, machine-searchable index to the most important segment of

²² Koning, D. A. Wittop, 50th anniversary of the International Pharmaceutical Federation, 1912-1962, *Journal Mondial de Pharmacie* 1962: 181-219, May-August.

²³ *Journal Mondial de Pharmacie* 1960: 303, July-December.

²⁴ *Journal Mondial de Pharmacie* 1959: 290, July-September.

biochemical and biomedical published literature and patents."²⁵ Each member is assigned definite journal and patent literature for which it provides to other members abstracts in German, French or English and coded Hollerith cards. The biological and chemical codes are confidential but are reported to be elaborate and detailed. At present the combined efforts produce each year 30,000-35,000 abstracts and 75,000-100,000 punched cards from 181 journals and the pertinent patents of Belgium, Germany, Great Britain, France, South Africa, Switzerland, Austria, India, and the United States.

The Alerting Ring is an informal arrangement for exchange of information on new chemical compounds reported in the current literature to have biological properties. It is described in more detail in the later section on Drug Compendia.

The groups named above constitute the known membership organizations whose major function is concern with drug literature. There are, of course, other associations whose activities are of major interest to those working in the field of drug research. The American Chemical Society's Division of Chemical Literature, for instance, often includes papers on the drug literature at its meetings. One symposium on the subject was published as *A Key to Pharmaceutical and Medicinal Chemistry Literature*.²⁶ At the ACS meeting in Cincinnati in January 1963, Dr. Howard Bonnett reviewed the developments which have taken place in the decade since that symposium. With this review will be available a checklist of publications covering the significant developments of the past 10 years. His paper covers advances in documentation and in chemical retrieval systems as well as in chemical instrumentation. Since these matters are of great pharmaceutical interest, but not necessarily "drug literature" in the scope of the present report, it will provide a useful supplement.

There are also groups, such as the American Pharmaceutical Association and the American Society of Hospital Pharmacists, which do not have a separate literature section or committee, but which do give prominence to information and literature control in their publications. A good deal has been written about the role of the pharmacist as a source of drug information to the community or hospital in which he works.²⁷ The professional journals of such societies, particularly the *American Journal of Hospital Pharmacy*, devote considerable space to bibliographies on drug information sources, on the literature of the profession, and methods of filing and maintaining information files.²⁸

²⁵ Personal communication from Robert L. Hayne, of Smith Kline and French.

²⁶ *Advances in chemistry series 16*, Washington, D.C., American Chemical Society, 1956.

²⁷ *E.g.* Aulian, John, and Berman, Alex, Role of the pharmacist in drug evaluation, *American Journal of Pharmacy* 134: 195-204, June 1962; Brodie, Donald C., and Meyers, Frederick H., Role of the pharmacist as drug consultant in the hospital, *American Journal of Hospital Pharmacy* 18: 11-13, Jan. 1961; Iannarone, Michael, Expanding role of the community pharmacist * * * health consultant to the community, *Journal of the American Pharmaceutical Association* NS1: 148-150, Mar. 1961; Parrott, Eugene L., The pharmacist, therapeutic or pharmaceutical consultant, *Journal of the American Pharmaceutical Association* NS2: 92-93, Feb. 1962; McDonnell, John N., Hospital pharmacy's opportunities and responsibilities, *American Journal of Hospital Pharmacy* 19: 121-127, Mar. 1962; Miller, Marvin L., Expanding role of the community pharmacist * * * source of information to the physician, *Journal of the American Pharmaceutical Association* NS1: 51-54, Mar. 1961.

²⁸ *E.g.* How pharmacists are keeping drug information, *Journal of the American Pharmaceutical Association* NS2: 87-88, Feb. 1962; Barth, A., and Hammel, R. W., Sources of Rx product information, *ibid.* 89-91; Strieby, Irene, Pharmaceutical information sources, *Journal of the American Pharmaceutical Association. Practical Pharmacy Edition* 20: 657-660, Nov. 1959; Heller, William and Francke, Gloria, Fifth supplement, Comprehensive bibliography in hospital pharmacy including publications to Jan. 1961, *American Journal of Hospital Pharmacy* 19: 325-356, July 1962; and particularly *American Journal of Hospital Pharmacy, Special Literature Number*, Jan. 1961.

SECTION 6

PRIMARY PUBLICATIONS

A. BOOKS

In the category of "books" we include all monographs, textbooks and reference works that do not appear in series at regular intervals of a year or less. Smaller nonserial publications will be treated separately with the "direct mail" brochures from pharmaceutical manufacturers which form a large part of this group.

Quantitatively, compared with periodicals, books form a small portion of the drug literature. In the last 3 years, for instance, the National Library of Medicine has acquired 280 books on pharmacy generally, 159 drug compendia, official and nonofficial, and 22 dictionaries in the field of pharmacy. All of the books and monographs received on specific drugs and classes of drugs would make a sizable addition to the above figure.

When 600 individuals in 43 colleges of pharmacy (54-percent of the total membership of the American Association of Colleges of Pharmacy) made a selection of those books of most importance to the pharmacy college curriculum, a list of 1,025 different titles resulted (appendix B). The editors report that "the biggest problem in editing this bibliography has been in deciding the limits of its scope. The suggestions from faculty members clearly showed that they are using, and finding valuable, a great deal of ancillary material." The editors omitted textbooks for the basic sciences prerequisite to the professional curriculum, such as Gray's Anatomy. Again, as with research organizations and hospital pharmacies, we find great interest in the pharmacy schools in material not strictly defined as drug literature.

Though the bulk of the material is in English, it will be observed that, of the 150 titles in pharmacognosy, 15 are in German. It is interesting to note, also, that of the 215 titles in pharmacology, 35-percent were published in 1960 or later, 45-percent between 1955 and 1959, and only 20-percent before 1955.

B. PERIODICALS

Though monographs form a substantial part of pharmaceutical publication, by far the greatest quantity appears in the periodical literature. In the periodical drug literature we include serial publications that appear regularly and at least as frequently as once a year, and which contain original papers, a considerable portion of which deal with drugs.

In 1958, Dr. Langlykke guessed that there were about 200,000 original papers published each year which might be defined as pharmaceutical literature (appendix A 1). Current information would necessitate some revision of the basis for his figures, but overestimation

would appear essentially to balance underestimation, so that 200,000 articles probably remain a reasonable working figure for the number of original pharmaceutical papers appearing annually.

Taking a different approach, our case studies show that more than 150 articles have been published on vinblastine in the 4 years since its isolation, and 530 on chlordiazepoxide in the same period. Another popular drug, chlorpromazine, has accounted for at least 13,000 articles since 1952.²⁹ A recent Pharmaceutical Manufacturers Association survey³⁰ indicates that there were 540 major drug entities introduced in America alone during the past 20 years.

To identify the part of the periodical literature that is most likely to yield articles of significance, we have relied on journal lists which have been selected by or for pharmaceutical specialists to a greater or lesser extent. These are in a composite list as appendix D. Though the longest of the 3 component lists contained under 350 journals, the total size of the composite list is 726 journals. Three hundred and eighty-two of the journals on this list also appear in the World List of Pharmacy Periodicals (appendix C).

Even a relatively homogeneous type of pharmaceutical information, new chemicals with physiological activity, is found in a wide variety of sources. An analysis of publications from which material was obtained for an alerting service in this field appears in appendix F.³¹ This notes, for instance, that of the 9 "journal titles responsible for more than 30 citations of new compounds it was found that 4 of these have been in existence 15 years or less." We have observed that of the 31 journals from which 10 or more compounds were taken, 15 are not in the World List of Pharmacy Periodicals. The authors call attention to the fact that "a cursory examination also revealed the reliance on abstracting and indexing periodicals for information from journal titles not held by any of the cooperating libraries."

In the limited field of pharmaceutical and medicinal chemistry, Lasslo³² has compiled a list of 171 titles, including 38 domestic, 124 foreign, and 9 translated serial publications.

A type of periodical not yet mentioned is the kind of newsletter used by hospital pharmacies to keep hospital personnel informed of new developments in the drug field. These vary in content and quality. Nearly all contain information on new drugs, and some on investigational drugs. Since they are usually limited in their distribution to the hospital concerned, they are on the borderlines of the open "drug literature." But it is interesting to note that some hospital pharmacies distribute them more widely.

Finally, though they do not usually occur in periodical lists, there are a number of house organs published as a part of the promotional programs of various drug companies. These are usually directed to the physician and tend to emphasize review articles and summaries rather than individual drugs or specific drug promotion. The Pharmaceutical Manufacturers Association³³ has recently compiled a list of 28 such organs published by member companies.

²⁹ Personal communication from Robert L. Hayne, of Smith Kline and French.

³⁰ de Haen, Paul, Review of drugs, 1941-1961, Washington, D.C., Pharmaceutical Manufacturers Association, 1962, mimeographed.

³¹ To be published in the July 1963 issue of the Journal of Chemical Documentation.

³² Lasslo, Andrew, An estimate of comparative serial literature resources supporting research in medicinal and pharmaceutical chemistry in major libraries of the United States, Bulletin of the Medical Library Association 50: 70-88, Jan. 1962.

³³ Pharmaceutical Manufacturers Association, Serial publications of PMA members sent gratis to physicians, revised draft, Jan. 5, 1963.

C. PATENTS

Patents are another important kind of primary publication. They are of interest far beyond their legal implications, as a substantial contribution to the pool of basic information on drugs. Chemical Abstracts expects that it will contain, in 1963, 30,000 abstracts for 38,000 patents. An industry patent department³⁴ has estimated the number of patents pertinent to the industry which appear annually as follows:

Country	Number patents per year
United States.....	2, 500-3, 000
Great Britain.....	1, 600-1, 900
Canada.....	1, 000-1, 500
South Africa.....	650-1, 000
Belgium.....	1, 100-1, 600
France (regular patents).....	800-1, 000
France (special medicament patents).....	520
Germany (patent applications).....	850-1, 200
Russia.....	150- 200
Japan.....	1, 350-1, 600

The same company reported subscriptions to 17 services supplying lists, abstracts, indexes and originals of patents, and ranging in price from \$5 to \$880 per year. That there is a great deal of interest in thorough coverage is apparent from the fact that there are at present proposals for 3 new services.

Documentation, Inc., proposes a "Textape" indexing service for \$1,500 a year that would provide a multilevel index on magnetic tape to chemical patents. A search program, designed for an IBM 1401 system, would provide access to the patents by the total patent or by individual compounds in a wide variety of ways. A separate but related service is "Docuform," which will contain the patents covered by "Textape" as 5" by 8" transparencies supplied with "Randomfile" tabs for random filing and finding.

Derwent of London, long active in abstracting in the field of pharmaceutical patents, now offers to supply the pharmaceutical and related patents from 16 countries, estimating that there would be 5,000 "basic patents" and 11,800 nonbasic patents, i.e., duplicate patents in various countries of a compound covered in a basic patent. The service would include full copies of the patent plus a numerical file by country, an abstract file, a company file, and code file. The code file may include a punched card file. Price of the service is estimated at \$4,500-\$5,100 a year.

Information for Industry is proposing a new \$3,500-a-year service that would cover pharmaceutical and related patents, excluding steroids, from 7 countries. They estimate that 3,500-4,000 patents a year would be covered. Copies of the patents would be furnished on 35 millimeter microfilm, and 2 decks of punched cards would be furnished quarterly, using extensive codes for chemical structure and biological data.

D. OTHER PRIMARY PUBLICATIONS

Two varieties of drug literature that cut across our classes of primary and secondary publications will be discussed in the section on Special Kinds of Publication (pp. 23-31); they are drug compendia and pro-

³⁴ Personal communication from Dr. Alexander Moore, Parke, Davis and Co.

motional literature, a high proportion of each being primary publications. There are a number of other subclasses of primary publication that have considerable impact in the pharmaceutical field; only 3 types are described here, by way of example.

The recent Pharmaceutical Marketing Research Directory³⁵ lists 38 consultant firms in the field and describes the publications and services of each. Many of them issue only special reports or confidential reports of regular but limited distribution. Some of the information they collect is of great importance in estimating the total amount of a particular drug consumed when evaluating adverse reaction reports. The directory also provides lists of periodicals offering marketing information.

Another group of great importance, though technically outside the scope of this report, is that cluster of publications reporting disease incidence, particularly those conditions which may result from adverse reactions to drugs. For reportable diseases and those causing death, a great deal of information is readily available in regular publications of the Public Health Service and the World Health Organization. Increasingly, statistics are being collected by hospitals, health plan groups, and such organizations as that responsible for the National Disease and Therapeutic Index.³⁶ Much of this data is available only on special request, or, if published, remains listed in peripheral sources and difficult to locate.

A type of information that is poorly controlled, but may provide a gold mine of otherwise unpublished data, is found in such special Government publications as the Hearings on Administered Prices of the Senate Committee on the Judiciary, conducted by Senator Kefauver, or in the Economic Report on Antibiotics Manufacture of the Federal Trade Commission (1958). These are rarely indexed, either in themselves or in secondary publications, and their citation in library catalogs or lists of Government publications is so general that the searcher would tend to find them only if he had already acquired many related clues elsewhere.

³⁵ 1963 Pharmaceutical marketing research directory, Metuchen, N.J., Marketing Services Co., 1963.

³⁶ Lea Associates, Inc., Flourtown, Pa.

SECTION 7

SECONDARY SOURCES OF PUBLICATIONS

Faced with a volume of material that no individual can possibly scan or search piece by piece, the person interested in the drug literature must rely heavily on secondary sources to find the information he needs. These secondary sources may be in the form of the mammoth abstracting and indexing services that cover a great deal of drug literature with a conventional approach, for example, Biological Abstracts, Chemical Abstracts, and Index Medicus. Or they may cover a broad spectrum of subject matter in a more unconventional manner, as do Current Contents, Index Chemicus, Biochemical Title Index, and Chemical Titles. They may cover a single subject area with the classic method, such as Cancer Chemotherapy Abstracts, or the abstract sections in many specialty journals, and reviews. Or they may take an unusual approach in surveying a single subject, as does Index-Handbook of Cardiovascular Agents.

Oatfield and Emilio³⁷ have listed 75 "secondary sources frequently found helpful in pharmaceutical literature searching." Fleming,³⁸ in reviewing medical abstracting journals and services, lists a number of new ones of importance to drug research and says that the trends are: "(1) Increased use of author's abstracts; (2) stepped up rate of borrowing or swapping of abstracts from other services; (3) narrowing of subject services; (4) slight reduction in time lag; (5) growth in number of area or national services. In a nutshell, there is the more than usual embarrassment of sources, involving a vast time investiture for consultation, operating in conjunction with the law of diminishing returns." Still other sources of drug information will be found in a wide variety of the services in the recent National Federation of Science Abstracting and Indexing Services Guide.³⁹

The World List of Pharmacy Periodicals (appendix C) indicates coverage by some secondary source of 262 of the 339 journals having scientific content. Of these 262, Chemical Abstracts was the only secondary source indicated for 97. Articles that did not deal with some chemical aspect of the drug would be out of scope for that source and hence not included. Without individual evaluation of the titles covered and missed and other sources where information from them would be picked up, one cannot attach too much significance to these figures. They do indicate a somewhat more complete coverage of pharmacy journals than has been noted in earlier studies.⁴⁰

A complete survey of all secondary sources would serve little purpose. Yet any selection is arbitrary. We have chosen a few of importance to the drug literature which are representative of the various

³⁷ Oatfield, Harold and Emilio, Betty Reynolds, Some aspects of searching in the pharmaceutical literature: reference fringe benefits, *American Documentation* 9: 238-272, Oct. 1958.

³⁸ Fleming, Thomas P., Medical abstracting journals and services, *Special Libraries* 53: 322-325, July-Aug. 1962.

³⁹ National Federation of Science Abstracting and Indexing Services, A guide to the world's abstracting and indexing services in science and technology, Report No. 102, Washington, D.C., 1963.

⁴⁰ See Francke, Don E., Some considerations in the preparation and publication of pharmaceutical abstracts, *American Journal of Hospital Pharmacy* 15: 963-972, Nov. 1958.

subject and format approaches now being used. Some others could probably as easily have been justified for inclusion.

Three major services—Biological Abstracts, Chemical Abstracts, and Index Medicus—have been visited in preparing this report. Each is working toward improving its publications and providing peripheral services, some of which are of great importance in the control of the drug literature. In other words, while maintaining their conventional publications, these services are experimenting with ways of giving individual consumers packages tailor-made to their particular uses.

Chemical Abstracts contained 166,500 abstracts of journal and patent literature in 1962 and predicts 190,000 for 1963, of which an estimated 40 percent have biological significance. Abstracts are from selected papers in 9,000 serial publications appearing in more than 50 languages. In 1963, portions of the journal will be overrun and sold separately. From January 1907 through 1962, Chemical Abstracts has abstracted and indexed more than 2,850,000 papers and patents, covering approximately 2,000,000 distinct compounds.

Each abstract in Chemical Abstracts is indexed with an average of 5.8 subject entries and 1.6 formula index entries, excluding cross references. The formula index and the indexing of individual compounds on the basis of a precise nomenclature guide (published every 5 years) make individual chemical entities relatively easy for the pharmaceutical or medicinal chemist to locate. A former time lag in publication of indexes has been substantially narrowed. The first half of the subject index for January-June 1962 was received in libraries in January 1963. And in 1963, the gap between appearance of abstracts and the publication of systematic subject indexes to them will be somewhat less of a problem because, in addition to the regular author index with each issue, a keyword subject index will appear with the issue to which it applies. There will be approximately five keywords per abstract and they will be taken from the body of the abstract as well as the title of the paper.‡

During the first 50 years of Chemical Abstracts, collective indexes were published for each 10 years. The 6th Collective Index covering 1957-1961 and succeeding ones will cover 5-year periods. It is estimated that this 5-year index will require 101 man-years of work, a major portion of which is technical manpower. There are also plans for custom searching by computer which will make possible generic searches for all compounds incorporating certain molecular components or relationships, no matter how their individual chemical names are indexed.

Biological Abstracts contained around 100,000 abstracts in 1962. We do not know how many of these were of pharmaceutical interest, but the number was not negligible. The papers from which these abstracts came were selected from 5,200 titles published in 84 different countries.

To keep indexing current, Biological Abstracts includes with each issue a permuted title index, which arranges the titles of articles alphabetically under each word in each of the titles. There are also cumulated permuted title indexes for the 4 volumes a year. In April 1962, Biological Abstracts started to issue the indexes separately, under the name of BASIC (Biological Abstracts Subjects In Context), as a controlled circulation publication; this is sent free of charge to individual biologists, and has been well received. The editor of

Biological Abstracts⁴¹ reports: "During the 3 months following the first appearance of BASIC we received almost 600 letters and postcards commending this addition to the information services provided by Biological Abstracts." The individual biologist can obtain single abstracts at a unit price. Consideration is now being given to translating BASIC into Spanish. Biological Abstracts is also experimenting with "several partially automated procedures that will enable us to provide biologists with quite specialized information grouped in any of a great variety of ways."

Index Medicus covered 146,000 articles during 1962. It is estimated that 25-50 percent of these contained information on drugs. Its usefulness as a source of information on drug literature is based on its complete coverage of a wide variety of medical journals (about 2,200) some of which are not indexed at all or not indexed completely elsewhere. Since it does not abstract papers, its systematic index appears relatively quickly after receipt of the original publication, usually within 2 to 4 months.

Plans for improvement include the institution early in 1964 of MEDLARS (Medical Literature Analysis and Retrieval System), a computer-based system for prompter publication of an expanded Index Medicus and subsidiary recurring bibliographies. By 1970 it is estimated that the system will be covering about 250,000 monographs and periodical articles from throughout the world, with 1,000 indexed articles entering the system daily. Provision is also made for answering about 90 demand requests daily and for producing 50 bibliographies on a recurring basis. A pilot project on a recurring bibliography has already been carried out in the publication for limited distribution of the Cerebrovascular Bibliography. This is published by the Joint Council Subcommittee on Cerebrovascular Disease, National Institute of Neurological Diseases and Blindness and National Heart Institute, from films provided from Index Medicus of references pertinent to cerebrovascular disease and therapy. The Library has held preliminary discussions on preparation of such bibliographies for several groups, including the National Heart Institute and the Food and Drug Administration, reports for both of which will undoubtedly contain references to much pharmaceutical literature.

Among publications covering broad areas of the drug literature with nonstandard methods are Current Contents, Index Chemicus, Biochemical Title Index, and Chemical Titles.

Current Contents is of particular interest because it was originally Current Contents of Pharmaco-Medical Publications. The Life Sciences Edition is still subtitled "Your Weekly Guide to the Chemical, Pharmaco-Medical and Life Sciences." It is published weekly and contains the tables of contents of current scientific journals. It is claimed that over 125,000 articles from approximately 650 journals are reported each year. This is purely a service for scanning; it has enjoyed popularity because its small size and relatively ready availability to individual users make it possible for them to carry it with them and check at their convenience for those articles they will wish to read more carefully. The publisher, Institute for Scientific Information, reports that although the initial distribution was mainly industrial, now approximately half of the 5,000 subscriptions go to

⁴¹ Conrad, G. Miles, New developments in the merchandising of biological research information, *American Scientist* 50: 370A-378A, Dec. 1962.

nonindustrial users, among whom are practicing physicians. Papers are listed in Current Contents within approximately 10 days of the appearance of the original journal and, in many cases, actually in advance of the issuance of the journals themselves.

Index Chemicus, also published by the Institute for Scientific Information, places emphasis on the graphic rather than verbal presentation of materials, an approach which seems to have appeal among chemists. One organic chemist is quoted as saying "that if he had to make a choice between sacrificing either Index Chemicus or attending a national ACS meeting, he would choose in favor of abandoning the meeting and retaining IC" (appendix A 3). It covers new compounds only, a total of over 100,000 a year. Each "abstract" is presented largely in the form of structural formulas and flow diagrams, with the usual bibliographic and indexing data plus authors' addresses and date of receipt of a manuscript for publication. Short verbal abstracts were added in January 1963. Indexes include monthly molecular formula and author indexes, cumulated each 4 months. In 1962 a biennial cumulative index to the 1960 and 1961 literature was provided to subscribers. Accompanying this index is one in which the molecular formulas have been rotated so that all compounds containing a given element may be found together, thus making certain kinds of generic search relatively easy.

Biochemical Title Index, published by Biological Abstracts, and Chemical Titles, published by Chemical Abstracts, are "keyword in context" indexes in their respective fields. They are prepared by a computer which arranges the titles of articles under each important word in each title. Each lists the articles from approximately 600 journals. Primarily useful for scanning, they may be employed for keyword searching of recent materials.

Another unusual source of information in the broad field of science research is the Science Information Exchange of the Smithsonian Institution, which maintains records of 250,000 research grants and contracts in biological, psychological, medical and sociological sciences, of which approximately 35,000 are currently active. Since much of the information it contains is concerned with biological and medical research, the SIE is of interest in communication of drug research information. Technically, however, it is beyond the scope of this study because its reports are presented on an individual basis and come from unpublished data.

Cancer Chemotherapy Abstracts, an example of the large number of conventional abstracting services in limited subject areas, began publication in January 1960 under the auspices of the Cancer Chemotherapy National Service Center of NIH. It contains approximately 5,000 abstracts per year. The abstracts are reported to appear within 6 weeks of the original article, and author and subject indexes appear with each monthly issue. The indexes contain detailed information on chemotherapeutic agent, tumor or test system, and miscellaneous other aspects of the articles covered. The thorough indexing of chemotherapeutic agents provides a means of finding information on anticancer drugs that was not previously available.

A large number of conventional guides to the literature of limited subject areas can be found in the bibliographies cited earlier in this

section. Indexes to the review literature are Bibliography of Medical Reviews, published annually and cumulated by the National Library of Medicine, and Bibliography of Chemical Reviews, published annually by Chemical Abstracts Service.

Among sources that treat a specific subject in a nonstandard manner, Index-Handbook of Cardiovascular Agents is unusual in its system of indexing in a set form, with symbols, and in considerable detail. It is published under the auspices of the National Heart Institute by the Institute for Advancement of Medical Communication. Indexes covering 1951-1955 have been published; at present the index for 1935-1950 is in press, and the 1956-1959 index is being compiled.

Cancer Chemotherapy Screening Data, another publication of the Cancer Chemotherapy National Service Center, appears at irregular intervals as a supplement to Cancer Research. The most recent report appears as part 2 of the December 1962 issue, and contains a cumulative index to this 18th report and the previous 17. This is not truly a secondary source because the data it reports have been stored in a 1401 computer as they were collected, and the publication is compiled therefrom. But it differs from other primary sources in that it is a tabular reporting of data rather than textual material. The collection and tabulation of data is done under contract by Documentation, Inc.

SECTION 8

SPECIAL KINDS OF PUBLICATION

A. DRUG COMPENDIA

At the core of the drug literature are the sources of concise information on individual drug entities, their names, composition, properties, uses, possible adverse effects, dosage forms, and the sources from which they are available. This information is available both in book and periodical form. There are also a number of services which supply a card unit for each drug on which is given most of the above data; a file of such cards may also be termed a drug compendium. Some of the direct mail pieces from manufacturers are intended for use in such card files. Though most of the drug compendia are generally considered to be primary sources of information, a few are wholly or in part secondary, in that most of their information is abstracted directly from literature sources. In addition, the information supplied in these sources may be either official or nonofficial. Most of the services cover a single country only, but some are oriented toward worldwide coverage.

Two lists of such sources are appended: that entitled "Drug Compendia in the Pharmacy Section of the Bibliography of Books and Reference Works * * * prepared for the Joint Committee on Pharmacy College Libraries (appendix B), and Drug Information Sources, prepared by a committee of the Pharmaceutical Section, Science-Technology Division, Special Libraries Association (appendix E). Since both of these lists contain annotations, the sources are not described here individually except as they illustrate particular points in their interrelationships. The American sources are emphasized, not because they are more important, but because the complex of services in this country provides illustrations of counterpart services that are available elsewhere on a national basis.

Because the various compendia identify drugs under a variety of kinds of name, let us consider first all the types of designation a drug may have. Dr. Miller, director of revision of the U.S. Pharmacopeia, summarizes the situation:⁴² "What perplexes students and practicing physicians alike is why these drugs must be known by seldom fewer than 3, usually 4, and often more than a half-dozen different names. And those who go abroad for study find themselves obliged to learn still other names in use there for familiar drugs."

Dr. Miller places drug names in 5 different categories: chemical names, code numbers, proprietary names, nonproprietary names, and official titles. Chemical names may be "trivial" or systematic. Dr. Miller mentions hydroxybenzene or hydroxycyclohexatriene as systematic names for the "trivial" phenol. As in this example, there may be more than one systematic name. In its "New Names" sec-

⁴² Miller, Lloyd C., Doctors, drugs, and names, *Journal of the American Medical Association* 177: 97, July 8, 1961.

tion, the AMA Council on Drugs gives α -(N-phthalimido)-glutarimide as the chemical name for thalidomide,⁴³ whereas the same compound is listed in Chemical Abstracts under N-(2,6-dioxo-3-piperidyl)-phthalimide. To the chemist, this presents no great problem, as the structural formula can be drawn readily from either name, and Chemical Abstracts provides a cross reference as well as indexing rules that would direct him to the larger parent compound, "phthalimide," if he were using that index.

Code numbers can be confusing because of the large number of laboratories from which an experimental compound may originate. Often, the first publications on a drug will carry code number designations only. Dr. Miller's paper gives a list of 57 prefixes used with laboratory code numbers. Other lists have been prepared by Katherine Owen⁴⁴ and Herbert Engelbert.⁴⁵ The former lists over 500 letter designations, and the latter around 300. There is considerable overlapping in the use of letters. For instance, Owen lists 11 companies using the letter "S," and Engelbert lists 7; the combined total is 13. There are 18 companies listed as using the letter "A" in their code numbers. The most extensive publication of the code numbers themselves appears in the monthly Unlisted Drugs, where the usual practice has been to list only those compounds in a series that have the greatest biological activity.

In his paper on nomenclature, Dr. Miller makes a proposal "for reaching an agreement within the pharmaceutical industry to use a system of code prefixes in identifying compounds during the period of laboratory and clinical trial" and "for similar industry agreement to select nonproprietary names, in cooperation with the Council on Drugs, for all new drugs before their introduction on the market, preferably at the time that New Drug Applications are filed with the Food and Drug Administration." Dr. Miller is now working with the AMA-USP Nomenclature Committee in promoting the early approval of nonproprietary names.

When a new drug is being considered for possible therapeutic use and sale, the manufacturer will assign it a proprietary name or brand name. Though the term "trade name" is commonly applied to this group, Miller points out that, under trademark law, "trade name" is synonymous with the company name and that either "trademark" or "proprietary name" would be more appropriate for this class of drug names. While there may be only one trademark for a particular chemical entity, it is also possible for several to be applied to the same compound. One report points out:⁴⁶ "Thus, there are a dozen trade names for reserpine, 6 for isoniazid and so on through a long list of agents." The report cited and many others have argued the merits of the use of proprietary names against employing nonproprietary ones only. The present report merely calls attention to the fact that both must be considered in using the drug literature.

A "nonproprietary" or "generic" name may be suggested by a manufacturer at the same time a trademark is submitted for registration. There is also disagreement on what this group should be

⁴³ Journal of the American Medical Association 178: 739, Nov. 18, 1961.

⁴⁴ Owen, Katherine C., Research letter-number designations, mimeographed, Jan. 1962.

⁴⁵ Engelbert, Herbert, Experimental compound letter designations, mimeographed, Apr. 27, 1962; earlier list in Methods of Information in Medicine 22: Jan. 1962.

⁴⁶ Drug terminology and the urgent need for reform, New England Journal of Medicine 263: 21-23, July 7, 1960.

called. Dr. Leake terms them "public" names.⁴⁷ Dr. Miller prefers "nonproprietary" and quotes Stecher⁴⁸ to show that the term "generic" is misapplied. These terms are nonchemical names which apply to a unique substance, no matter by whom it is manufactured.

It is possible for a trademark in one country to be a nonproprietary name in another. The classic example is "Adrenalin," which has been the proprietary name for the nonproprietary "epinephrine" in the United States, but which spelled with an "e" (adrenaline) is a nonproprietary name in Great Britain.⁴⁹ European companies are reported to be "sometimes reluctant to adopt simple names (as nonproprietary names) because of the claimed lack of protection against the names being used as trademarks in areas in which international patent and trademark agreements are not observed. The World Health Organization, however, uses its good offices with member countries to minimize this practice."⁵⁰

More often, two or more nonproprietary names may be applied before an "approved" or "official" name for a new drug has been found. This happened with both of the drugs selected for case studies in this report. Before chlordiazepoxide and vinblastine became recognized names, the two drugs were known in several publications as methaminodiazepoxide and vincal leukoblastine, respectively.

The recent efforts of the AMA-USP Nomenclature Committee may give us simpler names which will be adopted earlier and will be more likely to become universally used. One reason is that their work has been given wide publicity.⁵¹ The committee has also advocated the WHO "General principles for guidance in devising international nonproprietary names for pharmaceutical preparations."⁵² Following these principles, the committee works out names with the manufacturer and then submits them for consideration as international nonproprietary names. Copies of this submission are sent to the National Formulary, French Codex, and the Nordic and British Pharmacopoeial Commissions. If there are no objections from these agencies within one month, the name will probably become a "United States Adopted Name" (USAN).

Adoption of such names does not imply endorsement of the products involved by the AMA Council on Drugs or the USP. However, the name will be used in American Medical Association scientific publications and will become the "official title" in the U.S. Pharmacopeia and National Formulary if the drug is admitted to those publications. It is also hoped that it will become the international nonproprietary name. The recent legislation authorizing the Secretary of the Department of Health, Education, and Welfare to "designate an official name for any drug if he determines that such action is necessary or desirable in the interest of usefulness and simplicity"⁵³ should insure

⁴⁷ Leake, Chauncey D., Drug names, Letter to the Editor, *Journal of the American Medical Association* 172:1197, Mar. 12, 1960.

⁴⁸ Stecher, P. G., Generic names of drugs, *Journal of Chemical Education* 34: 454-456, Sept. 1957.

⁴⁹ Leake, Chauncey D., Drug names, Letter to the Editor, *Journal of the American Medical Association* 172:1197, Mar. 12, 1960.

⁵⁰ Reynolds, Mona, Joint AMA-USP effort clarifies drug names, *Hospital Topics* 40: 89-92, Sept. 1962.

⁵¹ Jerome, Joseph B., Procedures and principles * * * nonproprietary names for drugs, *Journal of the American Pharmaceutical Association* NS2: 359, 362, 366, June 1962; Reynolds, Mona, Joint AMA-USP effort clarifies drug names, *Hospital Topics* 40: 69-72, Sept. 1962; Jerome, Joseph B., Selecting generic names for new drugs, *Journal of New Drugs* 2: 276-282, Sept.-Oct. 1962; Jerome, Joseph B., Nonproprietary prefixes, Letter to the Editor, *Journal of the American Medical Association* 182: 211-212, Oct. 13, 1962; Jerome, Joseph B., Nomenclature of drugs, *Journal of the American Medical Association* 182: 853-855, Nov. 24, 1962.

⁵² Jerome, Joseph B., Selecting generic names for new drugs, *Journal of New Drugs* 2: 280-282, Sept.-Oct. 1962; World Health Organization, Cumulative list of proposed international non-proprietary names for pharmaceutical preparations, Geneva, 1962, pp. 51-52.

⁵³ Public Law 87-781, part B, sec. III, Oct. 10, 1962.

that there will be less confusion about nonproprietary and official names in the future.

U.S. Adopted Names are published in the New Names section of the Journal of the American Medical Association and in a number of other American journals. It is anticipated that they will also appear in a cumulated list in the near future. The present United States practice is similar to that which is followed in Great Britain and Scandinavia, where nonproprietary names become "approved names" whether or not the drugs themselves attain official status.

To return to a discussion of drug compendia themselves—each of the audiences for drug literature will tend to make more use of one kind of source than do others. The retail pharmacist would use price lists more than the practicing physician, who might have greater interest than the pharmacist in Medical Letter on Drugs and Therapeutics. In considering how best to demonstrate the interrelationships of content and purpose of the various drug compendia, we have chosen to give a general summary of purposes and approaches. The individual specialist soon learns which compendia are best for him in his ordinary use of drug information.

The inclusion of specific compendia in the AACP list (appendix B) implies their usefulness to a pharmacy college audience. Mrs. Strieby, in Remington's Practice of Pharmacy⁵⁴ and in the Journal of the American Pharmaceutical Association,⁵⁵ has indicated sources of most importance to pharmacists. The recurring Guide to Information Sources for the Hospital Pharmacist in the American Journal of Hospital Pharmacy has a section on Official Compendia, Drug Lists, Dictionaries, etc., and good pharmacology texts invariably have sections on drug information sources for the guidance of the physician.

Limited lists with specific purposes include the price lists (Drug Topics Red Book and American Druggist Blue Book), which contain all the necessary data on availability but practically none on composition or action. Trademarks Listed with the Pharmaceutical Manufacturers Association⁵⁶ includes some nonproprietary names as well as trademarks and identifies manufacturers, but does not give compositions and mentions action only in the related Bulletin of the Trade-Mark Bureau. Nonproprietary names are equated to their chemical composition in International Nonproprietary Names for Pharmaceutical Preparations; Cumulative List 1962 and to trade names as well in NFN-Navne, while in Proprietary Names (Trade Names) of Official Drugs,⁵⁷ official U.S. nonproprietary names that have occurred in the U.S. Pharmacopeia or National Formulary are related to their proprietary names, manufacturer, and an action term. Each of these name identifiers is useful in verifying and identifying names and in providing leads to more detailed information.

But one must seek further for information on market drugs which approaches completeness. The oldest in years of publication and still one of the best general American sources is Modern Drug Ency-

⁵⁴ Reference literature of pharmacy, in Remington's Practice of pharmacy, 12th edition, Easton, Pa., Mack, 1961, pp. 64-69.

⁵⁵ Strieby, Irene. Pharmaceutical information sources, Journal of the American Pharmaceutical Association, Practical Pharmacy Edition 20: 657-660, Nov. 1959.

⁵⁶ Pharmaceutical Manufacturers Association, Trademarks listed with the Pharmaceutical Manufacturers Association, Washington, D. C., Sept. 1960 and monthly supplements.

⁵⁷ American Pharmaceutical Association, Proprietary names (trade names) of official drugs, Washington, D.C., 1961.

cllopedia. Physician's Desk Reference has gained prominence because of its free distribution through manufacturers and wholesalers; since it relies wholly on contributions from manufacturers for the material included, it is incomplete and uneven in its coverage.

Modern Drug Encyclopedia is brought up to date by the monthly issuance of Modern Drugs. An even more prompt periodical, pharmIndex, gives about the same essential information in somewhat abbreviated form.

With the pharmIndex January 1963 issue, monographs are given in therapeutic groups as well as under the drug name as in the past. This makes it more comparable with Facts and Comparisons, which includes cryptic information on each drug under its action category and is kept up to date by monthly looseleaf supplements. pharmIndex also presents regular reviews of developments in various pharmacologic categories. The two most authoritative sources that present information by therapeutic categories, however, are the American Hospital Formulary Service and New and Nonofficial Drugs. The former is kept up to date with looseleaf supplements, and the latter with monographs in the Journal of the American Medical Association. Though inclusion of a drug in either publication does not necessarily imply endorsement, the statements made have been carefully reviewed by authorities; both are more selective than the sources previously mentioned. The evaluations that are perhaps most critical will be found in Medical Letter on Drugs and Therapeutics, prepared by an independent advisory board. Now that a cumulative 2-year index is available for its biweekly issues, it serves as a retrospective tool as well as a prompt source of up-to-date information on the drugs it covers.

Fine encyclopedic compilations which are extremely useful for drugs that have been known for several years are Remington's Practice of Pharmacy, the United States Dispensatory, and the British Extra Pharmacopoeia, which includes drugs from other countries. Other sources that include somewhat the same international information currently are the Swiss Subsidia Pharmaceutica and Mitteilungen über Neue Pharmazeutische Spezialpräparate, and Unlisted Drugs.

Though the primary emphasis is on therapeutic category or on drug name, the indexes of the general sources mentioned thus far make it possible to find information in them from almost any aspect. The exception is chemical composition. The Merck Index provides the most thorough and systematic approach from the chemical point of view. While it gives action and other information, primary emphasis is on chemical aspects of the drug; it is an excellent source of trademark equivalents.

American Drug Index could have been likened to several sources already mentioned, but it is just what it purports to be, an index. Hence, it is one alphabetic list presenting information from various viewpoints, chemical, nonproprietary, and proprietary name, and sometimes therapeutic activity. The information at each entry is very brief. Since it is published annually, it is particularly useful as a quick guide.

The two important official sources of drug information in this country are, of course, the National Formulary and the U.S. Pharmacopoeia. They give information on the drug itself and standards for purity, stability, etc., rather than on its therapeutic application.

Many of the sources already cited contain valuable information on toxicology and side effects, but there are 3 compendia which are primarily devoted to toxicology. They are Clin-Alert, the card service of the National Clearinghouse for Poison Control Centers, and the monthly Bulletin of Supplementary Material, which supplements the monograph by Gleason on Clinical Toxicology of Commercial Products.⁵⁸ So far as is known, Clin-Alert, the recent bulletin of abstracts on adverse reactions reported in the literature, is the only one which has had wide distribution.

The New Names reports of the AMA-USP Nomenclature Committee provide about the same information as many of the other sources, but in abbreviated form. A major difference, however, is that some of the drugs named are not on the market and some may never be marketed. Some of the retrospective services, such as Merck Index and U.S. Dispensatory, also include drugs not on the market currently, and both Modern Drugs and pharmIndex have regular pages on interesting investigational products, but they do not cover them systematically.

Since its initiation in 1949, Unlisted Drugs had until quite recently been alone in covering new investigational drugs extensively. By definition, it is a source of information on any new entity not identifiable from its name and not in standard compendia. Thus it also includes recently introduced drugs, particularly those from countries in which current standard sources are unknown or not readily available. This publication was established by the SLA Pharmaceutical Section to fill an important gap in the information to be found in all other known drug compendia. Its continued publication has been possible only through the voluntary contribution of time from a large number of people and organizations, since the subscription price covers only the cost of printing and mailing. Its cryptic reports on about 2,000 new names or experimental numbers each year are drawn from a basic list of medical and chemical journals assigned to participating libraries (see appendix D), plus other new items picked up by the contributors.

In November 1961, Chemotherapy Research Bulletin was initiated. It is an alerting service which supplies abstracts of important papers on new drug developments throughout the world. Its entries and index are under pharmacologic category, and it may be used as a periodical or torn apart into cards for filing. In 1962, it contained about 200 abstracts.

In late 1961, a group within the American drug industry started an alerting service on new chemicals, whether or not they have an identifiable name. Each company prepares and distributes to all other participating companies cards on new physiologically active chemicals that it has noticed in its literature scanning. A popular feature is the inclusion of a structural formula for each compound. During 1962, it covered approximately 1,200 new entities. The efforts of this Alerting Ring have caused a consultant, Paul de Haen, to come forward with a proposal that he perform the service for the companies. Beginning in January 1963, he is providing 3" by 5" cards every 2 weeks containing therapeutic, pharmacologic and chemical classification, manufacturer, all names or experimental numbers known,

⁵⁸ Gleason, Marion N. and others, *Clinical toxicology of commercial products*, Baltimore, Williams and Wilkins, 1957.

structural and empirical formulas, and literature references. He estimates that this service will provide 1,200 to 1,500 cards per year and has set the price at \$700 for a basic subscription.

Chemical Abstracts Service's proposed Chemical-Biological Activities is now being studied and evaluated by the PMA Literature Committee. It would provide comprehensive and prompt data on chemical compounds with biological activity, whether or not they are new. Its proposal includes telegraphic abstracts on the papers selected, plus structural formulas and computer-produced indexes of authors, molecular formulas, notation, chemical names and general concepts.

It will be noted that the information services on investigational drugs are directed largely to research workers. It has been the experience of Unlisted Drugs that it retains subscriptions from universities, industry, hospital pharmacies and large libraries, rather than from individual physicians and pharmacists. Presumably the interests of the latter groups will continue to be in drugs available on the United States market.

B. PROMOTIONAL LITERATURE

One of the peculiarities of the drug field is that industry advertising must be considered in a discussion of informational literature. Promotional literature is recognized as a major source of information at the time a new drug is placed on the market. For instance, the director of the New Drug Branch of the Food and Drug Administration remarks:⁵⁹ "When the drug is first marketed, there may be a paucity of journal publications on it. The brochure or package circular reviewed as part of the New Drug Application is available and is usually an adequate presentation of what is known about the drug." (See also appendix G.)

Recent legislation and regulations which tighten the requirement for including cautions in advertising and labeling may tend to make discussion of previous content or abuses academic. However, the careful study of the New York Academy of Medicine's Committee on Public Health should be noted. This committee, after prolonged deliberations and conferences with representatives of the Pharmaceutical Manufacturers Association, made the following recommendations:⁶⁰

1. A concise, authoritative, accurate and objective report on new drug products should be made available promptly at low or no cost to every practicing physician in the United States.

It is the committee's opinion that the aims and practices in the promotion of new products by the pharmaceutical industry do not coincide at all points with those for the education and enlightenment of physicians. The committee doubts that a pharmaceutical company can educate physicians objectively through promotion of its own products.

On the other hand, the practicing physician does not have the time to evaluate evidence on a new drug.

⁵⁹ Smith, Ralph G., Evaluation of safety of new drugs by the Food and Drug Administration, *Journal of New Drugs* 1: 59-64, Mar.-Apr. 1961.

⁶⁰ Pharmaceutical advertising, *Bulletin of the New York Academy of Medicine* 38: 46-58, Jan. 1962; see also The importance of clinical testing in determining the efficacy and safety of drugs, *Bulletin of the New York Academy of Medicine* 38: 415-439, June 1962, reprinted as exhibit 83 of Interagency coordination in drug research and regulation, hearings before the Subcommittee on Reorganization and International Organization of the Committee on Government Operations, U.S. Senate, 87th Cong., 2d sess., Aug. 1 and 9, 1962, part 2, pp. 528-541.

The sole interest of the committee is that public health and welfare be served by having adequate and accurate information concerning new drugs placed in the hands of practicing physicians. The most practical solution that would serve this purpose, while avoiding both the mentioned difficulties, would be a system under impartial auspices that will provide reliable information to each physician.

2. It is obvious that pharmaceutical advertising should not be inaccurate, inadequate, false or misleading. But over and above these criteria, the committee believes that whenever the advertising material cites specific indications and dosage it should also contain a statement of side reactions and contraindications in equal prominence.

3. In the opinion of the committee, clinical testing that is the source of the evidence on new drugs is just as important as the use of the evidence, whether for promotion by advertising or for education. In fact, clinical testing has a profound influence upon both promotion and education.

The Committee recommends that deliberations be devoted to the subject of clinical testing with an aim toward developing an adequate and satisfactory system.

Direct mail advertising literature is voluminous. An industry representative reports that the average doctor gets about 4,000 mailings a year.⁶¹ Dr. Bowes⁶² collected the drug advertisements and samples he received through the mail and estimated it weighed more than 365 pounds in a year. He expressed the opinion that "Being human, the physician cannot help but being greatly influenced to prescribe the drug to his patient that is most frequently and attractively flaunted before his eyes."

The volume of promotional literature has been criticized repeatedly. Dr. Levinger⁶³ deplores "needless, repetitive advertising. This applies not only to brochures, post-cards, colorful gadgets, etc., but to the innumerable 'publications' which flood our offices daily. Does the European doctor have his desk 'papered' so thoroughly? Does he need 4 to 5 special weekly newspapers in order to keep him informed, or is the tense, alert reporting of a journal like *Lancet* an indication of a saner approach to this problem in England? * * * Repetition of information, of drug ads, etc., may be needed for a less alert group of people, but physicians surely are well enough seasoned to be able to grasp new information if it is presented once or twice."

And a hospital pharmacist says:⁶⁴ "People are inclined to evaluate media of information as a total whole and accept or reject the entire media without making specific judgment on individual items contained. Thus we find ourselves throwing away circulars we receive

⁶¹ Boyer, Francis, Direct mail promotion, *Bulletin of the New York Academy of Medicine* 38: 207-212, Mar. 1962.

⁶² *New York Times*, Apr. 15, 1960.

⁶³ Levinger, Ernest L., The reader's burden, *Letter to the Editor, Journal of the American Medical Association* 175: 1020, Mar. 18, 1961.

⁶⁴ Crisalli, Joseph P., Human motives in communications, *American Journal of Hospital Pharmacy* 18: 137-139, Feb. 1961.

by mail with nothing more than a passing glance at them. Literature from pharmaceutical houses generally passes from the mail box to the waste basket because the physician considers it of low worth. When a form of communication becomes routinized and stereotyped, it ceases to attract attention and becomes worthless as information media."

One pharmaceutical executive points out that, in contrast to the wide variety of media available to the soft drink advertiser, the pharmaceutical industry has only 4 media, and rather than an audience of 175 million, the industry audience is only approximately 175,000 physicians.⁶⁵ The 4 kinds of pharmaceutical advertising have been described as: (1) direct mail; (2) the spoken word (detail men); (3) technical exhibits at medical meetings; and (4) medical journal advertising. Of these, the first and fourth fall into the category of "drug literature" in that they are publications which are used as sources of information on drugs. One of the important duties of the detail man, however, is that he "supplies the doctor with literature or other material which will be helpful to him for further review and reference."⁶⁶

Direct mail may come in a wide variety of forms. "At one end there is the government post card with a brief reminder message; at the other end the comprehensive illustrated book, bound in stiff covers, containing a complete review—pathological, pharmacological and clinical—on an important drug. There are reprints, house organs, and above all, samples, just to mention a few of the most prominent direct mail forms."⁶⁷

Pharmaceutical advertising has had very little attention as drug literature in secondary sources. However, the Committee on Pharmacomedical Nonserial Industrial Publications of SLA's Pharmaceutical Section includes brochures on new drugs and treatment methods in its quarterly COPNIP List along with notes on new films and other pamphlets of interest, such as those on drug vehicles, and government and association pamphlets on public health problems. Unlisted Drugs will include any new drug noted first in an advertisement, if composition is also given, as it is with all American prescription legend drugs.

⁶⁵ Hardt, Robert A., The role of medical journal advertising in pharmaceutical promotion, *Bulletin of the New York Academy of Medicine* 38: 286-290, Apr. 1962.

⁶⁶ Cain, George R., The detail man—what the pharmaceutical industry expects of him, *Bulletin of the New York Academy of Medicine* 38: 126-134, Feb. 1962.

⁶⁷ Boyer, Francis, Direct mail promotion, *Bulletin of the New York Academy of Medicine* 38: 207-212, Mar. 1962.

SECTION 9

CASE STUDIES

A. GENERAL

Much has been said on the many kinds of drug publications and on the fact that literature on drugs may be found in many places, including some that are particularly obscure. But as A. N. Whitehead has remarked, "Without generalization there is no meaning, and without concreteness there is no significance." To make the drug literature more understandable, two preparations have been selected and studied more specifically as to what has happened to publications concerning them. The drugs selected are from two different therapeutic categories, but otherwise they were chosen only because they are relatively new and because bibliographies on them were known to be available. Vinblastine is used in certain very specific types of cancer; chlordiazepoxide is used for a wide group of psychiatric conditions.

Time did not permit exhaustive analysis of the publications on either drug; it has been possible to give some detail on vinblastine, and to summarize the findings on chlordiazepoxide.

Full citations are available in bibliographies at the National Library of Medicine for those articles described without footnotes in the case studies.

B. VINBLASTINE CASE STUDY

1. The 33rd Annual Report of the British Empire Cancer Campaign covering 1955 (received in the National Library of Medicine August 21, 1956)⁶⁸ contained among the reports of its Campaign Fellows one from Dr. C. T. Beer, who was studying at the Collip Medical Research Laboratory, University of Western Ontario, under the supervision of Dr. R. L. Noble. Among several activities reported were two paragraphs in which Dr. Beer described how the Jamaica periwinkle (*Vinca rosea*) injected into rats caused a dramatic fall in the leucocyte count and suggested its potential therapeutic value in leukemia. Toxic symptoms were also noted, and it was remarked that: "It is not possible on the present evidence to state if the toxicity and leucocyte reaction are independent phenomena due to the presence of more than one biologically active substance."

2. During October 1957, Cutts, Beer and Noble⁶⁹ presented a paper on hematopoietic effects in rats of extracts of *Vinca rosea* before the Canadian Physiological Society. The Proceedings were distributed as a separate, and also appeared in *Revue Canadienne de Biologie* for December 1957. The abstract in these Proceedings describes animal studies in general terms and reports that "these

⁶⁸ British Empire Cancer Campaign, Thirty-third annual report covering the year 1955, London, 1956, pp. 487-488.

⁶⁹ Cutts, J. H., Beer, C. T., and Noble, R. L., Effect on hematopoiesis in rats of extracts of *Vinca rosea*, *Revue Canadienne de Biologie* 16: 476, Dec. 1957.

effects have been compared to those produced by aminopterin."

3. At a meeting held in Bethesda, Md., on March 13-15, 1958, the same three scientists presented a paper entitled "Role of chance observations in chemotherapy, *Vinca rosea*." They reported that in 1949 they had received some leaves of periwinkle, *Vinca rosea*, from Jamaica because of "the reputed benefits of a tea" made from them. These leaves had been tested for their effects on carbohydrate metabolism and possible use in diabetes mellitus. But further observation showed that injection of an aqueous extract into rats was causing a marked drop in the white blood cell count. They started to grow *Vinca rosea* near London, Ontario, and, in 1955, initiated an intensive chemical study. They were able to obtain a well-defined crystalline derivative, the sulfate, from the most active fraction of the extract, and to characterize it. And they reported that "the crude material possessed some definite carcinostatic activity against transplantable mammary adenocarcinoma in DBA/JAX mice and against a transplantable sarcoma in the rat." The paper was published in the *Annals of the New York Academy of Sciences* dated December 5, 1958, and received in libraries in early 1959.

4. A report from the Lilly Research Laboratories⁷⁰ on 4 other alkaloids of *Vinca rosea* mentioned "vincalucoblastine" in its introduction, cited the *New York Academy of Sciences* article, and reported in a footnote that a sample of "vincalucoblastine" had been supplied from the Western Ontario Laboratories. The footnote further stated: "They have isolated this compound independently from us and will publish their results elsewhere. The name of the compound, however, has been chosen by mutual agreement." The journal in which this report was published was dated April 1959 and was received in the National Library of Medicine April 23.

5. In *Biochemical Pharmacology* for March 1959 (received at NLM on May 5) a short communication from the Western Ontario group reported antitumor effects of "vincalucoblastine" in mice. The name was here and subsequently spelled with a "k" in spite of the announced agreement in the preceding paper on the use of vincalucoblastine.

6. In the fall of 1959, three more chemical papers appeared from the Lilly Research Laboratories, two in the September 5 *Journal of the American Chemical Society* (received at NLM October 1) and one in the November *Journal of the American Pharmaceutical Association, Scientific Edition* (received at NLM November 25). The first included Dr. Beer of the Ontario group as a joint author. These papers described preparation, characterization, and structural features of vincalucoblastine, as well as the botanical characteristics of *Vinca rosea* Linn. It was noted that vincalucoblastine and leurosine, isolated at the Lilly Laboratories in 1958, had identical molecular formulas and essentially identical infrared spectra, though some specific differences were noted. In the course of the third of these papers Lilly reported previous independent observation of a delayed toxicity of certain fractions of the crude *Vinca rosea*, and testing against experimental leukemia.

7. At the Central Society for Clinical Research meeting on November 6 and 7, 1959, the Lilly scientists presented two papers, abstracts

⁷⁰ Gorman, Marvin; Neuss, Norbert; Svoboda, Gordon H.; Barnes, Albert J.; and Cone, Nancy J., A note on the alkaloids of *Vinca rosea* Linn. (*Catharanthus roseus* G. Don.) II, Catharanthine, lechnericine, vindolinine, and vindoline, *Journal of the American Pharmaceutical Association, Scientific Edition* 48:256-257, Apr. 1959.

of which appear in the November Journal of Laboratory and Clinical Medicine (received at NLM November 12). One reported discovery of profound antileukemic activity in an extract during routine cancer screening in December 1957; and the other announced the first studies in human beings. Results in 20 patients with acute lymphocytic and monocytic leukemia were described generally and toxic effects mentioned. For the first time, the compound number, 29060-LE, was also given.

8. The November 25 Medical Science ⁷¹ (received at NLM November 30) carried the first summary that we have noted in a journal addressed to the general medical community, entitled "Alkaloids of *Vinca rosea* Linn—possible antileukemics." It was based on an earlier chemical study.

9. In 1960, there appeared a half dozen each of laboratory and clinical studies which involved vinblastine plus one whose title was oriented toward toxicity, all in United States journals. The toxicity title was: "Changes in scalp hair roots as a measure of toxicity from cancer chemotherapeutic drugs." These 13 papers appeared in a total of 8 different journals, Cancer Research accounting for 4 titles, and Proceedings of the American Association for Cancer Research for 3. Two of the journal titles are not on the Composite List of Journals of Pharmaceutical Interest (appendix D); they are Experimental Cell Research and Journal of the Indiana State Medical Association. However, only one, Journal of the American Pharmaceutical Association, Scientific Edition, is on the World List of Pharmacy Periodicals (appendix C).

10. During 1960, two summaries on new developments discussed vincalukoblastine, one in Cancer Chemotherapy Reports, and the other in Sogo Igaku (Medicine Tokyo), the first oversea report noted since the original announcement in 1955. And the May 25, 1960 Medical Science ⁷² printed a follow-up on its earlier announcement (item 8) stating they had subsequently learned of the independent Ontario work and were glad to find that "both research groups decided to pool their knowledge."

11. Meanwhile, the names began to appear in various lists, vincalukoblastine and 29060-LE in the January 1960 Unlisted Drugs, taken from the Journal of Laboratory and Clinical Medicine. In PMA's Bulletin of the Trade-Mark Bureau, Velban was announced as a Lilly trademark "for an antineoplastic agent, not yet in use" on June 29, and vinblastine sulfate as a coined generic name on October 19. Velban and vinblastine appeared in the March 1961 Unlisted Drugs, reported from the March 6 F-D-C Reports. The August 1961 Unlisted Drugs announced the export name, Velbe, which had appeared in the South African Medical Journal dated April 29, 1961, and, during August, Velbe was also announced in the U.S. Patent Office Official Gazette,⁷³ claiming "first use Jan. 18, 1961."

12. The first marketing announcement of Velban occurred in pharmIndex for April 1961 (received in NLM April 4). There were a description, cautions on use, and a tabular dosage summary. The May 1961 Modern Drugs (received in NLM May 16), carried a similar description, cautions and contraindications, plus a note suggesting that the user see the special company brochure for complete details.

⁷¹ Medical Science 6:740, Nov. 25, 1959.

⁷² Alkaloids for leukemias, Medical Science 7: 716, May 25, 1960.

⁷³ SN 116, 408, U.S. Patent Office, Official Gazette 769: TM 144, Aug. 29, 1961.

Vinblastine appeared in Physician's Desk Reference for 1962 and entered the American Hospital Formulary Service in April 1962 and Facts and Comparisons in June 1962. It had also begun to be announced for marketing as Velbe abroad—in South America, England, Spain. Though a complete search was not made, the first announcement noted was in the British card service, Pharmacy Digest, New Prescription Products Card Service, for September 1961.

13. On March 2, 1961, a letter announcing the marketing of Velban (vinblastine sulfate) was sent by Eli Lilly and Company to all practicing physicians, residents, interns, Veterans' Administration doctors, and pharmacists. It contained a statement that: "in view of the possibility of premature publicity in nonprofessional media, we take this means of informing you first." There was also a footnote to pharmacists saying that the drug would be used primarily in hospitalized patients, but the copy of the letter to physicians was being sent to keep the pharmacist informed. Inside the letter was information on historical data, pharmacology and toxicology, indications, contraindications, clinical reports, hematological effects, dosage recommendations, method of administration, evaluation of therapy, side effects, precautions, and how supplied. There were also 17 references. Fifteen referred to journal articles, of which 3 were in press; the other 2 were to investigators' reports and unpublished observations at the Lilly Research Laboratories. On March 10, the company sent a letter to domestic general practitioners, internists, hematologists, pediatricians, surgeons and radiologists, together with a 9-page brochure supplying virtually the same information as the March 2 letter but in larger type and more pleasing format. In April a folder was distributed for detailing domestic physicians, including the brochure. In August and September 1962 reprints of two articles from Cancer Chemotherapy Reports were sent to domestic sales representatives and made available to physicians upon written request to the Lilly Medical Department.

14. During 1961, 72 articles appeared in scientific publications on vinblastine. Of these, 31 were in journals on the Composite List (appendix D), and only 3 in those on the World List of Pharmacy Periodicals (appendix C). Forty-one were in sources that do not appear on either list. The United States was the country of publication for 39 of the papers, the remainder being distributed as follows: Canada-14; Italy-6; Austria-3; South Africa-3; Great Britain-2; Switzerland-2; and Germany, Australia, and Hungary-1 each. One of these papers was repeated in full. There were undoubtedly numerous announcements of the drug such as that in Science News Letter⁷⁴ and the ones from which information for Unlisted Drugs was obtained (item 11). It was also cited in secondary sources such as The Yearbook of Cancer. A British patent was obtained in 1961.

15. Up to the time the bibliography supplied by the Eli Lilly Company was completed, 65 scientific articles on vinblastine had been noted in 1962, 34 from journals on the Composite List (appendix D), 9 from those on the World List of Pharmacy Periodicals (appendix C), and 30 from neither. The geographic distribution of these articles was as follows: United States-38; Germany-8; Great Britain-4; Canada-3; France-2; Switzerland-2; Austria,

⁷⁴ Pertwinkle drug for cancer, Science News Letter 79: 181, Mar. 25, 1961.

Argentina, Czechoslovakia, India, Italy, Philippines, Spain, and Russia—1 each.

16. Undoubtedly, vinblastine had begun to be announced in texts by 1962. One example is a book on medicinal plants from South Africa.⁷⁵

C. CHLORDIAZEPOXIDE CASE STUDY

Chlordiazepoxide moved much more quickly from discovery to market than did vinblastine. A bibliography (supplied by Roche Laboratories and available at the National Library of Medicine) lists one patent and one clinical paper published in 1959. The product was marketed in March 1960 and its rapid rise to prominence is described in a paper by Milton Moskowitz.⁷⁶ During the spring of 1960, it was discussed in several lay journals.⁷⁷

Of the 528 papers in the Roche bibliography dated October 31, 1962, 2 appeared in 1959, 96 in 1960, 314 in 1961, and 116 in 1962. The periodicals in which they appeared were on the Composite List (appendix D) in 283 cases, on the World List of Pharmacy Periodicals (appendix C) 71 times, and on neither in 239 instances. The countries of publication were: United States—270; Switzerland—42; Spain—34; France—33; Germany—32; Great Britain—30; Canada—13; Austria—12; Italy—10; Japan—10; Netherlands—10; Belgium—7; Brazil—4; Mexico—4; Sweden—4; Uruguay—3; Argentina—3; Denmark—2; Norway—2; and Australia, Poland, and Portugal—1 each.

D. CASE STUDY SUMMARY

It is sometimes said that a relatively few journals cover a high percentage of the material of interest in any given subject. This would not appear to be the fact with the 2 drugs studied here. The 158 citations on vinblastine came from 19 different countries and 77 articles were from journals that did not appear on either basic list checked (appendices C and D). Chlordiazepoxide appeared in papers from 22 different countries, and 45 percent of the articles did not appear in journals of either of the basic lists. This would seem to bear out the hypothesis stated earlier in this report, namely, that in some important respects the "drug literature" is not separable from the totality of the biochemical and biomedical literature.

⁷⁵ Watt, John Mitchell, and Breyer-Branjwijk, Maria Gerdina, *The medicinal and poisonous plants of southern and eastern Africa*, Livingstone, Edinburgh, 1962, p. 88.

⁷⁶ Moskowitz, Milton, *Librium*, a marketing case history, *Drug and Cosmetic Industry*: 460-461, 566-567, Oct. 1960.

⁷⁷ *Tranquil but alert*; *Librium*, *Time* 75: 47, Mar. 7, 1960; *New way to calm a cat*; *Librium*, *Life* 48: 93-94+, Apr. 18, 1960; *Report on Librium*, *Time* 75:37, May 30, 1960.

SECTION 10

USE OF THE DRUG LITERATURE; DETAILING

A great deal has been written on communication of scientific information and its relation to use of the literature. Publications on communication of drug information and use of the drug literature are also plentiful. The latter studies are closely tied to the physician's first notice of a new drug and to its prescription. Nearly all have been carried out to evaluate the effectiveness of various means of promotion of pharmaceutical products and, in some cases, to endorse a single advertising medium.

We have spent considerable time in examining these publications, but the only conclusion we have been able to reach is that it would take an expert in survey methods and statistical analysis to make any valid deductions from the wealth of varying and sometimes conflicting reports. We can cite several recent summaries.⁷⁸

When Dr. Hampton⁷⁹ reviewed previous studies, based mostly on recall by physicians, he reported that "in practically all studies, the detail man has been shown to be predominant except in one case in which combined journal articles and journal advertisements were considered to be more effective on an overall basis. * * * However, one study showed discussions with colleagues to be a major factor." But when Dr. Hampton attempted various statistical correlations between promotional expenditures and monthly sales, he found that⁸⁰ "in four of the five products [analyzed], the greatest contribution to explained or associated variability was made by the use of space in medical journals. Direct mail made the next greatest contribution, and was the leading factor for one product. Detailing made the least contribution and can be assumed to have the least effect in explaining the variations in sales of the products under study."

An even more recent study concluded:⁸¹ "that the detailing of established broad spectrum antibiotics does not statistically affect the company's share of the market" and if detailing "were reduced in frequency or possibly eliminated, the relative sales volume of the four companies would not vary significantly under the conditions shown."

In connection with the physician's use of drug literature in general there has been some disagreement on his responsibility for and ability to evaluate it. Hardt,⁸² for example, believes "a doctor is one of the

⁷⁸ Hampton, Richard J., An analysis of the relationship between variations in promotion and sales of ethical pharmaceutical products, *Modern Medicine Topics* 23: [2-3], Apr. 1962; *ibid.*: 1-7, May 1962; *ibid.*: [2-5], June 1962; *ibid.*: [2-11], July 1962; Book, Walter E., An annotated bibliography of studies on the flow of medical information to practitioners, N.Y., Institute for Advancement of Medical Communication, mimeographed, part 1, Sept. 1961; part 2, Sept. 1962; *Patterns of Disease* 1962: 2-8, June.

⁷⁹ Hampton, Richard J., An analysis of the relationship between variations in promotion and sales of ethical pharmaceutical products, *Modern Medicine Topics* 23: [2-5], June 1962.

⁸⁰ Hampton, Richard J., An analysis of the relationship between variations in promotion and sales of ethical pharmaceutical products, *Modern Medicine Topics* 23: [2-11], July 1962.

⁸¹ Polinsky, Max, Measuring the effectiveness and value of detailing established products, *Modern Medicine Topics* 23: [1-7], Oct. 1962.

⁸² Hardt, R. A., The role of medical journal advertising in pharmaceutical promotion, *Bulletin of the New York Academy of Medicine* 38: 286-290, Apr. 1962.

most discerning persons on earth when it comes to deciding what product will benefit his patient most." On the other hand, the New York Academy of Medicine Committee on Public Health states:⁸³ "Skepticism has its place in the early stages of judgment, but it should create a desire for more facts. What the practicing physician needs is an honest and comprehensive basis for forming critical judgments, and information adequate to meet this need is not always supplied to him." And Dr. Rhoads,⁸⁴ in discussing changes in attitudes toward drugs as new information develops, says: "All of us covet the security of advice and guarantees of safety and effectiveness from the sources available to us—pharmacology and therapy text-book and reliable medical journals, etc. But this security is not to be had. Every physician, when he administers a drug, faces the necessity of using his own best judgment. He cannot escape the responsibility of being well informed and ready to change his mind on the basis of new information."

It can be assumed that personal communication and drug literature both have considerable effect in circulating drug information and that there will be variations in the kind of literature used and the extent of its use, depending on the particular audience and the particular individual in that audience. As long as the volume of information to be communicated is of the magnitude suggested in this report, finding the most effective means of communication remains one of the most important challenges to all concerned with the drug literature.

⁸³ Pharmaceutical advertising, Bulletin of the New York Academy of Medicine 38: 46-58, Jan. 1962.

⁸⁴ Rhoads, Paul S., The doctor's dilemma—drug therapy and the facts of life, Archives of Internal Medicine 107: 810-812, June 1961.

SECTION 11

SUMMARY OF THE REPORT

It is difficult to try to summarize the findings of this report in terms which are simple, yet not simplistic. One can only say that there is a great amount and variety of publication in what may be called the "drug literature"; that there are a great many secondary sources of information; that no single source is all-embracing in the needs it serves. This is not surprising; a problem involving many complex substances, varied biological activities under varying circumstances, different aspects, different uses, different audiences, millions of words, dozens of languages, not to say differences of judgment and differences of interpretation, and a myriad nomenclature, is not a problem which is susceptible to easy solution, or solution that is readily apparent. It is probable that there is no solution, only solutions. It is certain that a wide variety of tasks remain to challenge the best talents which chemists, biologists, pharmacologists, physicians, documentalists, and librarians can bring to bear.

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Medicine

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APPENDIXES

APPENDIX A

REPORTS OF ASSOCIATION GROUPS PRIMARILY CONCERNED WITH PHARMACEUTICAL LITERATURE

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*These reports, as compiled by the National Library of Medicine, are, for reasons of brevity, not reprinted within this publication.

APPENDIX A—ITEM 1

DISCUSSION ON PHARMACEUTICAL LITERATURE CONTROL

By Asger F. Langlykke

The Squibb Institute for Medical Research

Presented Before the P.M.A. Research and Development Section, Sea Island, Ga.,
November 5, 1958

The original proposal which caused this discussion to be put on the program came from a meeting of representatives of five pharmaceutical houses last May 9th to consider the proposal of the Battelle Memorial Institute for abstracting and indexing pharmaceutical literature from Slavic countries. These representatives suggested that "there should be a further study of the possibility of improving our coverage of new pharmaceutical developments in the Slavic countries." Suggested means for improvement were: (1) Translation or commissioning of reviews of Russian work in fields of interest to the pharmaceutical industry, as antibiotics, phenothiazines, etc.; (2) Addition of further journals, particularly non-Soviet, to those now covered by Abstracts of Soviet Medicine; (3) Translation of additional Slavic journals in full." The representatives suggested that the proper organization to initiate such a study is the P.M.A.

I feel that study of Slavic literature coverage takes care of only one area of the problems of pharmaceutical literature control and question whether it should be isolated. I therefore propose to review recent developments in this field in order that our Research and Development Section can consider what part it or the P.M.A. should take in them.

Definitions.—The "pharmaceutical literature" may be defined as any published papers on preparations with potential therapeutic or diagnostic activity, either natural or synthetic. These papers could cover any aspect of these preparations, such as chemistry, pharmacology, market potential, nomenclature, clinical investigation, toxicity, methods for compounding, storing and dispensing them, etc. "Pharmaceutical literature" may further be expanded to cover the study of basic physiological mechanisms which might potentially be controlled by drug or enzyme activity. It may also cover the application of pharmaceutical preparations for non-therapeutic uses, such as the agricultural applications of antibiotics. Obviously, pharmaceutical literature as defined here occurs in a wide range of fields, varying from botany and zoology to veterinary medicine and dentistry.

The forms which this "pharmaceutical literature" may take are: (a) primary publications, which would include all original papers whether published in journals or books or as theses, newspaper articles, meeting abstracts or patents; and (b) secondary publications, which would include all abstracts of primary publications, wherever found, as well as monographs and reviews, complete translations of original work, textbooks, handbooks (including pharmacopeias and dispensatories), yearbooks, bibliographies (including table of contents reproductions), etc.

The physical form of either the primary or secondary publications may be books or journals, cards, photostats or microfilms (including microfilms or printed abstracts on punched cards), but in order to constitute a publication, it should be reproduced in multiple copies and distributed.

In this frame of reference, pharmaceutical literature control can be defined as any activity which serves to make the information in primary pharmaceutical publications more readily available to pharmaceutical investigators and administrators. It could be achieved through secondary publications or through an information center which would have a privately prepared index and abstracts.

The purposes of pharmaceutical literature control are:

- (1) To make original work readily available as soon as it is published so that the pharmaceutical scientist or administrator may keep informed of current developments;
- (2) To make the original work retrievable at any subsequent time when all pertinent information on a specific subject is desired.

In order to quantitate the number of original papers annually published which might be defined as pharmaceutical literature, we have guessed that there are around 200,000, based on the following work with estimates recently made by various abstracting services as to the total number of papers of interest to their areas (2, p. 312-19):

	Total estimate	Percent of potential pharmaceutical interest	Calculated total of pharmaceutical interest
Agriculture.....	150,000	10	15,000
Biology.....	150,000	50	75,000
Chemistry.....	(1)	45	45,000
Medicine.....	175,000	75	131,000
Engineering.....	50,000	2	1,000
Nuclear science.....	18,000	10	2,000
Psychological.....	20,000	10	2,000
Strictly pharmacy.....	(2) 1,000	(3)	1,000
Subtotal.....	664,000		272,000
Less 25 percent for duplication in above total estimates where a single article would be covered in 2 fields.....			68,000
Total.....			204,000

¹ 100,000-plus.

² 174 journals are devoted to pharmacy exclusively, according to Francke's paper (5). This is 6 articles/journal.

³ All.

Obviously, with this quantity of total publication, pharmaceutical literature control will probably not be best totally accomplished by a separate publication or organization. Rather, it will probably best be handled by coordinating and improving existing services and then supplementing them only where they do not cover pharmaceutical literature at all or cannot be made adequate for pharmaceutical interests with respect to promptness or pertinency of their indexing and abstracting.

Our estimate of 664,000 is, if anything, short of the fact. Other estimates indicate that between 1,000,000 and 2,000,000 separate scientific papers are published each year. The major world abstracting and indexing services include only a part of these publications. A survey in 1957 of 14 major scientific abstracting services in America indicated that they needed to expand on an average by 55 to 60 percent to give adequate coverage of the world's literature (2, p. 340). Meanwhile, in the burst of activity following the launching of Sputnik a year ago, there came forth nearly 50 legislative proposals to solve the problem of our national scientific effort. Frequently some aspect of science information was included.

Programs for national centers for coordination of scientific information were also prepared by Stanford Research Institute and by Western Reserve University's Center for Documentation and Communication Research, the latter introduced to a meeting in Cleveland in February 1958 and referred through the Council on Documentation Research to the National Academy of Science-National Research Council. Under recommendations of the Council on Documentation Research, the Governing Board of NAS-NRC approved on April 27, 1958, recommendations to establish an Advisory Board on Information and Documentation in Science whose functions would include examination of the problem, assessment of present knowledge, coordination of present activities by the Academy-Research Council and others, assistance of the Office of Scientific Information, specifically in assessment of proposals for research undertakings and identification of areas where new knowledge is needed, and finally "to prepare a plan for an information center on the subject of information and documentation science." (3, p. 21)

The results of Government legislative proposals are summarized in Senate Report No. 2498 (85th Cong., 2nd Sess.), "Progress Report on Science Programs of the Federal Government." This report, together with parts 1 and 2 of the hearings on the Science and Technology Act of 1958 (S. 3126 and S. 4039, 85th Cong., 2nd Sess., Subcommittee of the Committee on Government Operations) and Senate Document No. 90 (85th Cong., 2nd Sess., Analysis and Summary * * * [of the] Science and Technology Act of 1958), bring together a comprehensive picture of national documentation activities today as well as a summary of legislative action.

The original Science and Technology Act of 1958 proposed to establish a Department of Science and included creation within that department of a Bureau of Technical Services and transfer to it from other agencies all science information activities. In practice this would have included transfer of the Patent Office, the Office of Technical Services and the National Bureau of Standards from the Department of Commerce, transfer of the Office of Scientific Informa-

tion with the transfer of the National Science Foundation to the Department of Science, etc. In May and June the hearings already mentioned received testimony to determine the present status of operations of private facilities and Federal services in the documentation field and to obtain recommendations for Government participation either in establishing a scientific information center or in providing funds in support of existing programs.

The Government agencies participating in the hearings were in general accord that no additional legislative authorization was needed. Dr. Alan T. Waterman, director of the National Science Foundation, outlined in some detail the steps which that organization is taking "to assume national leadership in the scientific and technical information services carried on both within and outside of Government." Mr. Walter Williams, Under Secretary of Commerce, summarized the function of the three important Federal agencies as: developers of information and a coordinating function—National Science Foundation; depository of information—Library of Congress; centralized clearinghouse which directs the citizen to the information he needs—Office of Technical Services. Dr. Burton W. Adkinson, head of the Office of Scientific Information, National Science Foundation, spelled out in more detail how his group carries out coordination and mentioned that they are "setting up an arrangement whereby the National Bureau of Standards will be the clearinghouse and research advisory body on machine work within the Federal Government." Public Law No. 85-864 (September 2, 1958) "created a Science Information Service in the National Science Foundation to be responsible for providing or arranging for the provision of indexing, translating, abstracting, and other services and for developing new or improved methods for making scientific information available. A 15-member council, plus ex officio members, is established to advise and consult with the service, such council to be appointed by the director of the Foundation." The implementation of the program seems assured by appropriations and available obligational authority for the National Science Foundation aggregating \$138.5 million for fiscal year 1959, compared with corresponding totals aggregating \$49.7 million for fiscal year 1958.

In January 1958 at a conference provided for by funds from the National Science Foundation, 14 American scientific abstracting and indexing services organized the National Federation of Scientific Abstracting and Indexing Services, with the announced objective "to improve the documentation—abstracting, indexing and analyzing—of the scientific and technological literature of the world in such a manner as to make it readily available to all scientists and technologists." The first means to this objective was stated as "encouraging the development of abstracting and indexing for those specialized subject fields not at present covered by such services and the further development of existing services." Other means include the standardization of such routine matters as journal citations, abbreviations and transliteration of foreign-language titles and "cooperation, education, research, and the pursuit of mutually useful enterprises, to strive for the best possible research information services for science and technology in the United States and abroad." (1, p. 240)

A concrete example of the National Science Foundation's interest in the field of pharmaceutical documentation is shown by its partial support of a delegation of the Pharmaceutical Section, Science-Technology Division, Special Libraries to the Fédération Internationale Pharmaceutique in Brussels in September 1958. Two members of the group, Miss McCann of Squibb and Miss Boykin of Lederle, offered a 3-step proposal for international collaboration to be directed by FIP. The 3 steps were: publication of a series of reviews of pharmaceutical activity, country by country, with emphasis on facilities for collecting and publishing drug information; expansion of "Drug Information Sources" bibliography with representatives of other countries reporting their own publications; and national or regional collection of drug information publications wherever local interests demand it.

The proposal was the subject of interested and searching discussion and several constructive suggestions were made as to how members of FIP could support "Drug Information Sources." M. Degand, FIP secretary, felt that FIP did not have the staff required to administer the program as recommended, but pledged to cooperate in any way that was possible, perhaps through the medium of their journal, *Journal Mondial de Pharmacie*. The matter of asking each country to provide FIP with information about their published sources and existing documentation centers was referred to the council of FIP.

Miss Sewell, of Squibb, participated in a discussion by the Press and Documentation and Scientific Sections on pharmaceutical abstracting. The problems, needs, and present status of pharmaceutical abstracting and indexing were surveyed and the FIP council approved a committee with the announced aim of

having a pharmaceutical abstracting publication in existence by the 1962 meeting of the federation. Don Francke, director of Pharmacy Service at the University Hospital and assistant professor at the University of Michigan College of Pharmacy, was appointed chairman, and Miss Sewell, who was named the member at large for pharmaceutical documentation and industry, is the only other American member. In addition, the Pharmaceutical Society of Great Britain has interested itself in putting out such an abstract publication and Mr. Fitch, its publications director, asked Dr. Francke and Miss Sewell, among others, a series of questions on specifications and possible circulation of such a publication. He expects to issue a memorandum on his investigations in the very near future. Judging from their present publications, the Pharmaceutical Society should be uniquely qualified to put out useful abstracts.

The Battelle Memorial Institute has, in a little over a year, come up with 3 separate proposals for abstracting and indexing the pharmaceutical literature: first, to establish a pharmaceutical information center at a cost of \$25,000/year/firm with a minimum of 10 firms participating in a 3-year contract; second, to abstract and index 62 Slavic language periodicals and establish a pharmaceutical information center for Slavic publications only at a cost of \$5,000/year/firm with a 2-year contract for at least 10 firms; and third, to cover a limited number of journals at a flat rate of \$25,000 for one year only to be divided among whatever number of firms decide to participate.

Perhaps the most tangible development in cooperative documentation in the pharmaceutical field is the contract issued by the Pharmaceutical Manufacturers Association to Eugene Garfield Associates for indexing the steroid literature according to the Patent Office system. Though cards from the literature have not been received by individual companies as yet, they are expected soon (November 1958).

As you all know, Mr. Garfield is also responsible for the Current Contents of Pharmaceutical Publications which was begun in January 1958 and has been subscribed to by a number of our companies. This publication fulfills many of our requirements for keeping informed of recent developments and frees us to place more emphasis on provision for prompt retrieval of information on a specific subject when it is needed.

Also in fields other than abstracting and indexing, 13 pharmaceutical companies made it possible for Consultant's Bureau to publish the Russian Pharmacology and Toxicology in translation. Four companies have agreed to subsidize the translation of Antibiotics by Consultant's Bureau beginning with 1958 issues, the first to appear in January 1959. Both publications are also available on general subscription.

Because of the continued activities by various organizations to promote pharmaceutical documentation, the Pharmaceutical Section of the Special Libraries Association this year established a contact committee to consider and evaluate proposals for pharmaceutical literature control and to make recommendations for action by the section.

In fields which have considerable pharmaceutical interest, there have been 2 studies on the scientist's use of the literature—both by Herner and Co. One surveyed the use which American medical scientists make of Soviet medical research publication, showing that relatively little use has been made of it in the past because of its inaccessibility and concluding that, as it is more readily available, "appreciation of Soviet research will depend ultimately upon the quality and nature of that research." (*Science* 128: 9-15 (July 4, 1958).) The other is being done for Chemical Abstracts to evaluate the use made of the publication by scientists and librarians.

Within the past 10 years, many important products have been developed by the American pharmaceutical industry, the ideas for which have come from the published literature. It can therefore be assumed that the better a pharmaceutical organization covers the literature, the greater are its chances of coming up with a profitable new product. It is my contention, however, that in all cases those publications from which ideas for new products came were known to the scientists in other firms than the one which developed the product. In other words, the key to development of the new idea was not that the scientist had the information, but that he had the know-how for developing it.

If my assumption is true, it seems wasteful and unsound for several organizations to duplicate effort in abstracting and indexing in order to make available the pharmaceutical literature. With the increasing burden on those individual companies which attempt to cover the rapidly expanding literature, I feel that the time has arrived for examining what would be considered ideal literature coverage for the pharmaceutical industry and for agreeing on some measure of

cooperation to obtain that coverage. In order to accomplish this objective I propose the establishment of a committee within the Research and Development Section of Pharmaceutical Manufacturers Association to work with the contact committee already set up in the Pharmaceutical Section of SLA and to serve as a continuing body to deal with the literature problem. Without intending to limit the committee's activities, it is suggested that their responsibilities should be:

1. To state what would be considered ideal literature coverage.
2. To initiate or make a study of the "literature habits" of pharmaceutical scientists and administrators in order to verify and supplement that statement.
3. To examine any proposals for total or partial pharmaceutical literature coverage which may be made so as to determine their adequacy and to offer a common approach so that any proposal may be adapted to the needs of all.
4. To initiate or to work with FIP or other properly qualified agencies in initiating approaches to existing services, stating exactly how they may be improved to meet our needs and to determine what financial arrangements would be necessary to attain the standards desired.
5. To initiate or recommend other specific activities such as the full translation of foreign journals and to muster support for such activities.
6. To maintain close liaison with all organizations active on literature problems (such as the Office of Scientific Information, National Science Foundation) so as to utilize all available services for the benefit of pharmaceutical literature control.

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APPENDIX A—ITEM 3

REPORT OF THE LITERATURE COMMITTEE*

Presented at the Research and Development Section Meeting,
November 16, 1960

By Alexander M. Moore, Parke, Davis Research Laboratories

I would like to thank Dr. Langlykke for re-arranging our program this afternoon, to insure that Dr. Adkinson and I would have time to discuss a problem of interest to you. To put it briefly, this problem is that the output of research results, which we need to do our job, has outstripped the publishing, abstracting, and indexing services on which we have become dependent. The Research and Development Section set up a study committee approximately 2 years ago to study the problem and to make recommendations. The first chairman of the

*Pharmaceutical Manufacturers Association Year Book, 1961-1962, Washington, D.C., pp. 421-426.

committee, Dr. F. Y. Wiselogle, presented a progress report at White Sulphur Springs a year ago. I would like to summarize the way the situation looks to your committee today.

First, I should like to say a few words about the composition of our committee, to give you an idea of the level at which we are working.

Fred Wiselogle, Associate Director in Charge of Chemical Research at Squibb, is not only a member of our committee but also a member of the Advisory Committee to Karl Heumann's Office of Documentation at the National Research Council in Washington. Thus, Fred is able to serve as a liaison between our group and the literature activities which are coordinated by the National Research Council.

Bob Harte is Coordinator of Science Information at Merck Sharp and Dohme. Both Bob and Fred are members of a committee advisory to the Research Department of the U.S. Patent Office and are able to keep us informed on the information and literature activities of the Patent Office. In addition, Bob is a member of several other important committees including the NAS Committee on Newer Methods of Handling the Chemical Literature.

Elliott Steinberg is Director of Research Administration at Warner-Lambert. Elliott is also a member of an advisory committee to Isaac Welt's Cardiovascular Literature Project.

Bill Elpern is at Cutter Laboratories, Berkeley, Calif. Bill has been most helpful in keeping us advised on activities on the West Coast, particularly on progress in the use of machines for the translation of languages.

Ken Hamlin is Director of Chemical Research, Abbott Laboratories. Ken and I try to keep abreast of activities in the Midwest.

Doug Remsen, who is head of the Department of Technical Information at the Squibb Institute, serves as liaison between our committee and the Medical Section of PMA.

I should also mention that we are working closely with the Special Libraries Association, of which I believe most of your research librarians are members. Miss Louise Lage, Lilly Laboratories, is chairman of a committee of the Special Libraries Association which has as one of its functions maintaining contact with our committee. Miss Lage attended the meeting of our committee in New York in September. I have reviewed these relationships with you in order that you may understand some of the channels of information which are open to us.

During the past 2 years the members of your committee have made numerous visits to Chemical Abstracts, Biological Abstracts, the National Library of Medicine, the U.S. Patent Office, the Documentation Center at Western Reserve University, in Cleveland, Documentation, Inc., which handles the data of the CCNSC, Isaac Welt's Cardiovascular Literature Project, and many other groups involved with scientific literature important to us. We have discussed notations with both Bill Wiswesser and Malcolm Dyson. We have had experts on information theory and high speed computers come to discuss their specialties with our committee. We have attended scientific meetings including the annual meeting of the American Documentation Institute held in Berkeley, Calif., a few weeks ago. We have done all these things in order to educate ourselves on the nature of the literature problem. We would not be so inconsiderate as to try to enumerate the details we have absorbed. However, I would like to give you the highlights of our thinking and to pass our conclusions along to you.

Our committee has faced up to the question, "What does the pharmaceutical industry need in the way of literature services that it does not already have?" Fred Wiselogle talked to you a good deal about this at White Sulphur Springs. I would like to say here only that we need 2 things very badly. First, we need an alerting service. Our laboratory people need to know scientific information related to their work as quickly after it is published as possible. We do not mean to turn our laboratory people into walking encyclopedias. Rather, we recognize that research people need to have certain new knowledge, to be stimulated to carry out experiments, based on the new information.

Secondly, our laboratory people need to have indexes, or punched cards, or magnetic tapes, in order that they may quickly learn whether a specific bit of information which they need exists in the literature or whether it does not. If there is a lag of 3 or 4 years in indexes to the scientific literature, our laboratory people accept this fact and do not complain excessively about it; however, we know, and you know, that their research efficiency is greatly impaired.

There have been 2 recent developments which emphasize the importance which the pharmaceutical industry places on these needs. First, an article appeared in *Experimentia*, reporting that Hoffmann-LaRoche and Sandoz are cooperating in a plan called "Codeless Scanning" of the literature. John Aeschlimann in-

formed us that Ciba is also cooperating in this plan. Second, 2 large American pharmaceutical companies have considered it necessary to cooperate with 5 European pharmaceutical companies in preparing abstracts and punched card indexes to the current scientific literature. Your committee has not had an opportunity to properly consider these developments. However, it is at once apparent that this kind of solution to the literature problem is an extremely expensive one. We estimate that it would require the full time of 5 to 10 technical people, plus an elaborate IBM installation from each participating company. Furthermore, if the pharmaceutical industry goes ahead with a large operation in this area, it will duplicate, or even forestall, services which are being developed and which should be developed by our scientific societies, governmental agencies, and enterprising entrepreneurs.

Your committee has discussed separately, with C.A., B.A., Index Medicus, and other services, our needs and the way their plans for the future might help us. Dr. Adkinson made the excellent suggestion that we go one step further. He has offered to call a meeting of representatives of all the important information services, and to invite your committee to discuss the needs of the pharmaceutical industry with them, in the hope that a discussion of the problem might be fruitful. We have, of course, agreed to go along with this plan, and we have promised to provide Dr. Adkinson with a proposed agenda for such a meeting.

Now I would like to change the subject, and talk with you about some developments during the past year or so, which represent progress in the direction in which we would like to move. I would like to discuss, first, a publication, Index Chemicus, produced by Eugene Garfield, in Philadelphia, on the recommendation of your Literature Committee. The purpose of this publication is to report the structural formulas and provide indexes to compounds within 30 days of their publication. If you look at I.C., you will see that an organic chemist interested in chlorothiazide or meprobamate or chloramphenicol can rapidly skim the pages, judging at a glance whether the compounds reported are related to his field of interest. Furthermore, the molecular formula index is the kind of index he is trained to use.

One organic chemist told a member of our committee that if he had to make a choice between sacrificing either Index Chemicus or attending a national ACS meeting, he would choose in favor of abandoning the meeting and retaining I.C. Most of you know that this publication has been well supported by the pharmaceutical industry. The inclusion of 14 pharmaceutical companies among the charter members listed on the back cover attests to this support. I am sure you will be pleased to learn that Gene Garfield now fully expects that income from subscriptions to I.C. will equal expenses for the first year's operation. We believe that this is a remarkable achievement for an enterprising individual in this area and we think that Gene should be congratulated. However, we should caution that the future of I.C. is dependent on your continued support. The publication has not received expected support from the chemical industry. Therefore, Gene fears that if some of you, who placed large subscription orders the first year, in order to help put I.C. on its feet, now drastically reduce your order, he will run into trouble unless additional subscriptions are forthcoming from other sources. We would urge those of you who have not considered subscribing to I.C. to seriously consider how this service might be of benefit to you. Furthermore, I would call your attention to the sliding scale of prices, and the fact that you can have some of your copies mailed to university collaborators, or even to laboratories overseas, and still take advantage of the quantity prices.

As we leave I.C., I would like to contrast it with another service of Gene Garfield, entitled Current Contents. C.C. is now in its third year of publication. It reproduces the tables of contents of 550 of the most important scientific periodicals. Although this publication gives no details other than the table of contents, it has the tremendous advantage of making this information available at a very early date. Indeed, C.C. sometimes arrives several weeks ahead of the journals which it covers. Another publication, Chemical Papers, which is produced by the Chemical Society of London, gives the titles of papers in the field of pure chemistry within 2 months after the appearance of the original publication. It has the advantage of grouping papers on similar compounds together, but its field of coverage is much smaller than that of C.C.

Another publication, which we most certainly should discuss, is Chemical Titles. This will be published by C.A., on a semimonthly basis, beginning January 1, 1961. Chemical Titles is prepared by a process written for the IBM-704 computer, and ancillary machines, by Mr. H. P. Luhn and his colleagues at the IBM Corporation. The concept was described by Mr. Luhn at the ACS meeting at Atlantic City a year ago. As Fred Wiselogle reported to

you last year, your committee was in contact with Mr. Luhn, and was actually considering approaching him with the idea of applying the concept to C.C. However, we were delighted to learn that C.A. intended to implement the concept in the publication *Chemical Titles*. The experimental product was prepared under the leadership of Dr. G. Malcolm Dyson, Director of Research for C.A.

Chemical Titles will index every key word in the titles of articles appearing in some 550 journals. This index will lead a searcher to information he desires, provided the information is represented in the title. We believe C.T. will be of value to the pharmaceutical industry, especially as a reference tool. We believe there should be at least one copy of C.T. in each research library.

Index Chemicus, *Current Contents*, and *Chemical Titles* are all "express services." That is to say, each of these should put information on our laboratory peoples' benches within a few weeks after the publication of the original article.

I would like to leave these express services now and talk to you a few moments about improvements which are taking place in our older services. Colonel Frank Rogers, head of the National Library of Medicine, who talked with you at White Sulphur Springs last year, mentioned what was formerly *Current List of Medical Literature*, and which is now being produced under the title of *Index Medicus*. Beginning with 1960, the format was completely changed and the publication was produced entirely by machine methods. We are looking forward with considerable interest to the annual indexes, and fully expect that the new version will be much more useful to us than was the old *Current List of Medical Literature*.

The number of abstracts appearing in *Biological Abstracts* has almost doubled within the last 3 years and we believe that the improved publication will be more useful than it was formerly.

C.A. is going over to semiannual indexes beginning in 1961, and we understand that by 1962 they will be indexing currently, and that by 1963 they will have caught up their backlog. This is a much more favorable forecast than we made for C.A. a year ago. In addition, Dr. Dyson's research department at C.A. has projects now under way involving punched cards, computers, chemical notations, and biological codes. It is reasonable to hope that these activities should eventually yield services of value to us. However, C.A. does not want to fix deadlines, or even to say exactly what these services will be. In view of the many unfulfilled promises of literature people in the past, I can understand C.A.'s hesitancy. We do not believe we should count on them to give us much more help with our problems in the next year or so; and we should not expect them to solve all of our difficulties for us. But I do think we are going to get better services from C.A. in the years ahead.

Most of you are aware of the work of the Research Department of the U.S. Patent Office in developing a punched card code for steroids, in preparing punched cards covering steroid patents, and in cooperating with PMA in preparing punched card indexes to the steroid literature. The 3 years support by the R.&D. section of this steroid project will terminate at the end of the year. Bob Harte and Fred Wiselogle advise us that we may fully expect the coding of the steroid literature on punched cards to continue under Patent Office auspices after our support terminates. Dr. Julius Frome, of the Patent Office, invited our committee to recommend additional chemical fields for consideration by the Patent Office. We have recommended the field of pyrimidines, and we understand that they are beginning work in this area. We may expect the Patent Office slowly to extend their coverage to other chemical types, but it will be a long time before their punched cards will cover the whole chemical literature.

Another question which we are following is the status of machines, particularly the high speed computer, with respect to solving some of our literature problems. We can assure you that computers now available will do jobs we need to have done. However, the big computers—the machines which are really fast—are fabulously expensive, and the programming of an information retrieval job can require a staggering amount of effort. We conclude that the people who are working with these machines are frequently more interested in experimenting with what the machines will do than in solving problems which are important. Perhaps this is quite proper at this stage in the development of these machines. We assure you that your committee is watching this area closely and, as there are developments, we shall try to keep you informed.

Now, in order to summarize the situation, let us ask ourselves again where we stand. The most significant observation we have made is that the literature services are in a state of flux. They are gradually changing their policies, and we are able to notice a gradual improvement. In this situation, we believe it important for us to keep our needs constantly before these people, to encourage them, and to offer help and support in areas where it is mutually

advantageous for us to do so. In addition to our talking with the abstracting services separately, Dr. Adkinson is arranging for us to meet with Chemical and Biological Abstracts, and Index Medicus together, to talk over our problems. There are areas, of course, where the needs of the pharmaceutical industry are sufficiently specialized that we must go it alone. Your committee will be in a better position to point out these areas as it becomes more apparent just how far organizations like C.A., B.A., and I.M. are able and willing to go. Lastly, we have reported some real progress to you. I.C. and C.C. are already realities, and C.T. becomes a reality on January 1. We again urge any of you who are not subscribing to these publications, to seriously consider doing so.

APPENDIX A—ITEM 4

REPORT OF THE LITERATURE COMMITTEE

Presented at the Research and Development Section Meeting, October 24, 1961

By Alexander M. Moore, Parke, Davis Research Laboratories

The literature problem is summarized rather nicely by some statistics which Dr. Alan Waterman, director of the National Science Foundation, presented last week. According to Dr. Waterman, the population is increasing at a rate which would double the number of people in the United States in 40 years; our productivity is increasing at a rate which would double annual gross national product in 25 years; the number of students graduating each year with Ph.D. degrees is increasing at a rate which would double our annual output of scientists in 12 years; our research effort is increasing at a rate which would double our annual research expenditure in 7 years. Dale Baker, Director of Chemical Abstracts, has reported that the number of scientific articles abstracted by Chemical Abstracts each year is increasing at a rate which would double the annual volume in $8\frac{1}{2}$ years. In 1960 Chemical Abstracts published 145,000 abstracts, or an average of 12,000 each month. Because of the increased number of scientific articles, the American Chemical Society will publish a completely new journal of medicinal chemistry next year, also a new journal of biochemistry, and a new journal of inorganic chemistry.

What should we do to use this rapidly increasing volume of scientific literature more effectively? Last year at Sea Island, we discussed some of the "newer" services: Index Chemicus, Current Contents, Chemical Titles, Index Medicus and the steroid punched cards. The Literature Committee followed most of these from their inception, stimulated and encouraged some of them, and recommended that each pharmaceutical company not already subscribing try them out.

Last year, we also reported 2 cooperative plans under which pharmaceutical companies had joined together to abstract the scientific literature and to index relevant parts of it on punched cards or computer. One of these plans was established by Hoffmann-La Roche and Sandoz. The other includes 5 companies in Europe and 1 (Smith Kline & French) in the United States. Another U.S. company (Abbott Laboratories) considered joining, but declined because the plan did not fully fit their needs. The Literature Committee considered the advantages of such a cooperative plan and concluded that more could be gained by cooperating with the existing abstracting services, if the services would supply our needs. Dr. Burton Adkinson of the National Science Foundation offered to set up a meeting in Washington at which our committee might discuss the problem with representatives of Chemical Abstracts, Biological Abstracts, and the National Library of Medicine. Those of you who attended our meeting at Sea Island last year will recall that we accepted this invitation. Subsequently, Dr. Adkinson invited the chairman of the Literature Committee to present our literature needs in a talk before the International Federation of Documentation (FID) in London. Your committee met with the abstract services in Washington on September 22; the chairman talked before the FID in London on September 13.

In both meetings we emphasized that the pharmaceutical industry needs both alerting services and information retrieval services. We pointed out that other parts of our scientific community have similar needs. For example, the monies appropriated by Congress for research in areas related to the development of new drugs and pharmaceuticals is much larger than the total research expenditures of our whole industry, and this government-financed research must need information services like those needed by our industry. Although we talked about our needs at these meetings, we did not propose detailed mechanisms

for filling these needs since we believe that detailed plans should be worked out by experts. However, we did agree that we would arrange for discussions of details with any or all of the abstracting services, just as soon as they were ready to do so. The services listened attentively to our story, but were quick to point out that we are only one of their customers. They suggested that PMA employ a full-time expert to work with them on detail. In reply, we indicated that we would much prefer to have all proposals and questions channelled to the chairman of the PMA Literature Committee who would refer them to the proper experts in the pharmaceutical industry. We agreed that we would keep in close contact with them and serve as a liaison between them and you.

I would like to talk with you briefly about what each of the abstracting and indexing services is doing.

The National Library of Medicine (NLM) is in the strongest position from a financial point of view. Most of you met the director, Dr. Frank B. Rogers, who attended our PMA session 2 years ago, and addressed us at that time. We have visited the National Library of Medicine several times, and have discussed our problems with Dr. Rogers and also with Scott Adams, his associate director. Most of you are acquainted with NLM's Index Medicus, which covers the medical literature of greatest interest to us. At the invitation of Mr. Adams, our Literature Committee asked some of the librarians of the pharmaceutical industry, who are also members of the Special Libraries Association, to review the index headings of Index Medicus. Their findings, together with our own comments, have been forwarded to the National Library of Medicine.

One of the most promising developments is the MEDLARS project of the National Library of Medicine. The library has negotiated a 2½ year contract with the General Electric Corporation to apply modern information processing equipment to problems of the medical literature. MEDLARS' first goal is to increase the coverage of Index Medicus to 2,500 journals, to reduce the time lag, and to increase efficiency of operation. The second goal is to produce a service which would routinely provide perhaps 50 different "packages" of current science information, divided into specific scientific fields. We hope that one or more of these packages will be suitable for the pharmaceutical industry. The third goal is to provide an information retrieval service with a capacity of 100 searches per day, and storage of information for 5 years. We have agreed to visit the National Library of Medicine again in 2 or 3 months to discuss their progress and problems of mutual interest.

Biological Abstracts is in the weakest financial position. Furthermore, Miles Conrad, the director, informed us that only 2 percent of his support comes from industry, and that he cannot justify gearing his operation to industry. Beginning October 15, each abstract will carry a permuted title index, and beginning in 1962 Biological Abstracts will publish a new journal entitled Biological Titles which will cover 500 to 600 journals. Biological Abstracts is also considering the possibility of packaged abstracts for specific fields, but it is difficult to see how they can do much for the pharmaceutical industry without extensive financial support.

Chemical Abstracts is making steady progress. Dr. Hamlin and I visited with Dale Baker and Malcolm Dyson at Chemical Abstracts as recently as October 10. As you know, they are now issuing 6 months subject indexes, and expect the indexes to be completely "up-to-date" in 1962. Their research program, under the direction of Dr. Dyson, is supported by the National Science Foundation to the extent of \$200,000 per year. They have applied to the National Institutes of Health for support of the developmental stages. Chemical Abstracts has not asked the pharmaceutical industry to support their research and development, but Dale Baker has properly pointed out that if we want special services, or want them to move faster than their funds allow, we will have to pay for it.

Chemical Abstracts is planning an alerting service which is designated "Restricted Express List/Pharmaceutical Activities Section" (REL/PAS). This list will give the chemical structures and biological activities of compounds appearing in the chemical literature. It will issue every 2 weeks, and the time lag should be no more than a few weeks after the appearance of the original article. REL/PAS is expected to be operational before the end of 1962. Dr. Dyson has agreed to supply us with an experimental copy as soon as one is available, and we shall pass this along promptly to your laboratories in order to learn your reaction. We have encouraged Chemical Abstracts strongly in this development, and we, therefore, urge you to let us know if you feel your companies would not support such a service.

Chemical Abstracts is also planning a much more elaborate information retrieval service. They have ordered an IBM-1401 computer which is scheduled for deliv-

ery in March 1962. They plan to record structural formulae, biological activities and physical properties onto magnetic tape which can then be searched by computer. Their goal is a confidential answering service. If they are successful, your chemist will be able to telephone Chemical Abstracts for searches by either chemical structure or biological activity. For example, he might ask for all thiosemicarbazides active against tuberculosis in the mouse. The work of the Documentation Ring indicates that a mechanical index is wanted by our industry. Sooner or later we are going to require it. Accordingly, we are encouraging Chemical Abstracts to move ahead slowly under Government support. It is very important for us to know if your companies will support such service, and how much you think they would pay for it. We will not send out a questionnaire until we have more information, but we would greatly appreciate any advice you could give us.

In addition to our work with the standard abstracting-indexing services, your committee has also been in touch with other groups. We might highlight two. Gene Garfield has proposed that his organization, Institute for Science Information, will provide an alerting service covering biological activities reported in the scientific literature, if we wish him to do so. We believe we should hold off encouraging Gene until we see what Chemical Abstracts can provide. Lynn Bartlett's Information for Industry is working out with the pharmaceutical companies a plan for coding all United States and foreign patents on IBM punched cards. We expect Mr. Bartlett will contact you with regard to his plans in the near future.

The Literature Committee has also been watching the application of computers to the literature problems of the pharmaceutical industry. A few companies are successfully using computers for information retrieval. Outstanding examples are W. H. Waldo at Monsanto Chemical Company, and Oliver H. Buchanan at Sterling Winthrop Research Institute. As you know, the National Science Foundation is supporting projects to translate Russian to English by computers. Dr. Alan Waterman recently reported that computer translation, plus editing by translators, can now be done for \$21.57 per thousand words. This compares with a cost of \$9.53 per thousand words for a conventional job by a capable translator. In summary, we can say that computers are now available which will do jobs that we need to have done. However, the best machines are fantastically expensive, and the programming requires a stupendous amount of effort. Furthermore, most of the people who are working with these machines appear more interested in experimenting in what the machine will do than in solving problems which are important.

You may be interested to learn that President Kennedy has appointed a panel to reopen the question of a broad-scope national information center. We predict that the recommendations of the panel will be against setting up such a national center at this time. Our scientific societies and Government agencies who are best able to cope with the information problems have had difficulties—even in their own areas of competency. It seems unlikely that combining all of these problems under one agency would help to solve them. Most of us agree that a large-scale information center is inevitable at some time in the future, but this appears a long time away.

Sunday afternoon I met with the Steering Committee to review the work of the Literature Committee. We discussed our meeting with the abstracting and indexing services, and it was agreed that we should cooperate with the existing services if they can supply our needs, rather than setting up an American counterpart of the Documentation Ring.

It was further agreed that we should plan an open meeting of the Literature Committee at the American Chemical Society meeting in Washington, on Wednesday evening, March 21, to discuss literature problems.

APPENDIX A-ITEM 5

REPORT OF THE LITERATURE COMMITTEE

Presented before the PMA Research and Development Section
November 2, 1962

By Eliot Steinberg, Warner-Lambert Research Institute

I would like to depart from the usual opening approach to a report on the state of technical literature by not referring to the oft repeated statistics concerning the "literature explosion." I am sure all of us have seen these statistics again and again. It is as serious as the population explosion, but not nearly as much fun. My own personal feelings, which are not necessarily that of the committee, are probably summed up by what Robert Graves, distinguished poet and man of letters, had to say about the situation—"to recover our sanity, we should abolish all paper and forbid anyone to have writing materials except poets." I could at this point sit down and let it go at that. However, I do feel a brief progress report is in order. Perforce, it will be brief because yours truly assumed chairmanship of this committee on June 5 of this year.

Dr. Alexander Moore left the chair in such fine shape that I haven't had enough time to foul it up. The members of the committee are:

Dr. C. W. Scull, SKF
Dr. K. E. Hamlin, Abbott
Dr. C. J. Cavallito, Irwin, Neisler
Dr. Alexander Moore, Parke, Davis

Now, on to progress. First of all, Dr. Moore in his report to this group last year in Colorado Springs told you that we were planning an informal meeting with information scientists of member companies to be held in Washington, D.C., at the spring American Chemical Society meeting.

The main purpose of this open forum with the experts was to allay the fears of our librarians and technical information people that this PMA Literature Committee was making decisions and recommendations to our research directors and companies in areas of their expertise, and that we were operating behind a curtain of secrecy. Another purpose was for this committee to get the experts' opinions on our approach or interpretation to what was happening in the literature field which affects our industry. Alex Moore ran a very fine meeting and I believe we accomplished our purpose. Approximately 45 people attended. Indeed, we thought the meeting went so well that we should have another one at a forthcoming ACS meeting.

An interesting development is the step being taken by Chemical Abstracts Service in respect to one of our basic literature needs—that is, correlation of the literature in regard to chemical structure and biological activity. At the last national ACS meeting in Atlantic City, Dr. Dyson, research director of Chemical Abstracts, distributed sample copies of and delivered a paper on a new journal entitled Chemical-Biological Activities. This journal, which some of you may have seen, is a computer-produced digest. They plan to publish this every 2 weeks. It will identify compounds in terms of their formula, generic name or authors' name of the compound, a Chemical Abstract registry number, and Dyson cypher. The biology (if it is available from the primary publication) will cover comparative activity, type of drug, organ concerned, identity of animal, mode of administration, LD₅₀, and several other parameters.

Your committee feel that there is a need in this area, and as a matter of fact, we have urged Chemical Abstracts to do this for about 2 years. We would like to defer formulating an opinion in regard to the value of this sample copy, particularly because one of the unknowns is the cost. Tentatively, some of us feel that although the publication may be good for retrospective searching, the bench scientist will find it difficult to read or scan. We are planning to poll, by letters, opinions from the technical information departments of our companies concerning this service. If it seems in order, a distillation of these opinions will be given to Chemical Abstracts in order to have the service come closer to our needs.

A type of alerting service that will be readable and useful to all of us is exemplified by the drug information exchange project which is now a cooperative exploratory project being carried out by 6 pharmaceutical companies. Essentially, this is an alerting service based on citing on a 3 by 5 file card the first reference to pharmacologic action of a chemical compound. Pharmaceutical information personnel are very interested in this type of service. It is their favorite means of manual filing and an excellent tool for them in answering the quick questions.

The laboratory scientists also like a card format—it is easy to scan, and it is amenable to special files kept on the researcher's desk. A commercial editor, Paul de Haen, has made a proposal to our companies to assume production and editorship of this service. An annual subscription would cost \$700 for one set, and approximately \$20 per set for additional copies. It is planned to include therapeutic classification, manufacturer, structure, molecular formula, generic name, manufacturer's code number, trademark, name of animal species used, and literature reference.

Although Mr. de Haen has asked the committee for endorsement of his proposal, we felt that rather than rush into such an endorsement, it would be wiser to wait and see whether other commercial editors come up with a better proposal. We will encourage other competitors and obviously we can have no opinions until more information is available.

The next item of interest concerns Index Chemicus, a publication now going into its third year of operation and recognized by the committee as filling a big gap in the chemical literature. From the limited checking which we have done, this opinion is borne out generally by 'organikers' in our industry. This journal indexed 100,000 compounds this past year (equal to Chemical Abstracts). It provides structural diagrams and synthetic flow diagrams; it publishes 3,000 pages a year; it includes authors' summaries, and—it is prompt. It is a valuable service, and this committee can take some credit for it. As you know we urged it into being and indeed some 15 PMA member companies gave initial support of up to \$2,000 each to get it off the ground.

Well, Mr. Garfield, publisher of Index Chemicus, wrote to me 2 months ago outlining his sad financial plight. All the aforementioned quality and quantity doesn't come cheap, and he wanted the PMA somehow to underwrite a \$60,000 deficit for 1962 (out of total expenses for the publication of \$210,000). He proposed that PMA purchase 100 bound sets for distribution to medical and pharmacy schools. This was duly discussed by the committee and rejected. We informed Mr. Garfield that although we are vociferous supporters of Index Chemicus, we could not recommend to the Research and Development Section of the PMA that we support his deficit. He must get his support through normal channels, namely subscriptions. All we could do is urge this type of support from our companies even in the face of a sharp rise in the subscription rate for 1963 (from a 1962 base rate of \$400 for the first copy to \$700). This support we indeed urge for several important reasons—this journal is unique, important and useful to our chemists.

Now a brief word about the Washington activities. Dr. Moore and I are representatives of the PMA on the Committee on Modern Methods for Handling Chemical Nomenclature. This committee is under the sponsorship of the Division of Chemistry of the National Academy of Sciences—National Research Council. Other associations represented on the committee are the American Chemical Society and the American Institute of Chemical Engineers. This committee meets once or twice and has been in the "thick of the fray" concerning chemical notation and cyphering techniques. This is a complicated affair. Dr. Moore and I find that the activities of this committee are useful to us in keeping abreast of this important situation and also any other techniques being developed for handling the chemical literature.

Some of you may recall an announcement made in the trade press and scientific journals back in July of this year concerning new activities of the National Institutes of Health to draw up a program for improving the dissemination of biomedical information.

Dr. F. Ellis Kelsey was asked by the Surgeon General to draw up a program. At the instruction of the committee I spoke to Dr. Kelsey several weeks ago, not for the purpose of volunteering our help, but to ask what has been accomplished to date. He has planned a 4-day seminar for the early part of November to explore the role of the Federal Government in health communications. The seminar will concern itself with appropriate activities of the Public Health Service in this area and to develop programs and specific steps within programs to improve health communications, on a scientist-to-scientist level. I am not sure what this latter phrase means, but it is an exact quotation from Dr. Kelsey. This seminar will be made up of two-thirds university participants and one-third Government participants. He said he would be glad to discuss the results of this seminar later on this month.

APPENDIX A-ITEM 9*

ESTABLISHMENT OF THE COMMISSION OF PHARMACEUTICAL
ABSTRACTS

Minutes of the Meeting of the Council of the International Pharmaceutical
Federation, September 11, 1958

The President opened the meeting at 17.05 hours.

He extended a cordial welcome to Mr. Paul Blanc, head of the Pharmaceutical Service of the World Health Organization, who was present at the meeting.

The President called on the chairmen of the sections to report on the discussions that have taken place meanwhile.

SCIENTIFIC SECTION

Prof. Ruysssen made the following proposal in agreement with the Press and Documentation Section:

I. The FIP will charge a committee with the preparation of positive and realistic proposals for discussion by the 1962 assembly, which will result in the compilation of a comprehensive and reliable documentation.

II. Since this task will require solution of problems concerning the general organization and planning of libraries and financial matters in addition to the questions of a purely scientific and practical pharmaceutical nature, it is proposed that a committee be appointed, comprising the sections:

- | | |
|--|---------------------------------|
| 1. Scientific Section | Prof. Steiger
(Switzerland) |
| 2. Press and Documentation Section and Hospital
Pharmacists Section | Dr. Francke (U.S.A.) |
| 3. Industrial Pharmacists and Press and Documen-
tation Section | Mr. Charial (France) |
| 4. Additional members representing: | |
| (a) industrial documentation | Miss Sewell (U.S.A.) |
| (b) the commercial documentation of the
wholesale trade in specialities | Mr. Regnotto
(Switzerland) |
| (c) organization and finance | Mr. Virogniaux
(Switzerland) |

III. This committee should be given the competence and the necessary credits for carrying out its assignment in the shortest possible time. It is proposed that it meet once a year, e.g. concurrently with the FIP Assembly.

The President recommended adoption of the proposal.

Mr. Winters (Netherlands) and Mr. Heseltine (Britain) raised objections. In their view the compilation of a limited documentation involved great expense, and they felt that no decision could be made until the financial consequences were known.

Prof. Ruysssen pointed out that for the present no money was needed, since the committee would only consider what documentation activities FIP might possibly start. The question of the costs would not arise until a concrete plan had been drawn up.

Prof. Ruysssen's proposal was approved on the condition that this entailed no obligation for the FIP to make any expenditure.

Mr. Don Francke would act as chairman of the new committee, and Prof. Steiger as its secretary.

* * * * *

*Journal Mondial de Pharmacie 1959: 153-154, April-June.

APPENDIX A-ITEM 10*

REPORT OF THE COMMISSION ON PHARMACEUTICAL ABSTRACTS.
 MINUTES OF THE MEETING OF THE COUNCIL OF THE INTERNATIONAL PHARMACEUTICAL FEDERATION, SEPTEMBER 13, 1961

* * * * *

COMMISSION OF PHARMACEUTICAL ABSTRACTS

Mr. Fitch told the council that the report was only available in English. The commission consisted of representatives from 7 different countries. Five meetings had been held of which the latest took place in Pisa.

The commission had proposed:

1. To publish a pharmaceutical abstracts journal;
2. The journal would appear every fortnight and would treat subjects like: drug formulation, development, stability, sterilisation, pharmaceutical legislation, education and economics;
3. The costs entailed would amount to about \$30,000 a year.

Nine national organisations had been asked whether they were interested to cooperate. From only 2 countries a reply was received. Thereupon it was decided in Pisa that there was too little interest and that the project had better be given up.

The council agreed to this suggestion but stressed that the work should—on limited lines—be taken over by the future editor of the Journal Mondial de Pharmacie.

The President warmly thanked Dr. Don E. Francke and Mr. W. K. Fitch for all the work they had done as president and secretary of this commission.

* * * * *

*Journal Mondial de Pharmacie, 1961: 234-235, September-December.

APPENDIX B*

SELECTED LIST OF MONOGRAPHS IN PHARMACY

The following list consists of a partial introduction, table of contents, and 3 completed sections of a bibliography of pharmacy books and reference works. It is to be published in the American Journal of Pharmaceutical Education. The list has been collected from recommendations of approximately 600 individuals in 43 colleges of pharmacy and edited by Martha Zachert, former head, Department of Scientific Literature, Mercer University, Southern College of Pharmacy, and C. Larry Thomasson, head, Pharmacy Department of the same institution.

It is valuable as a classified list of the monographs of current importance in several of the basic fields of pharmacy.

PARTIAL INTRODUCTION TO BIBLIOGRAPHY OF BOOKS AND REFERENCE WORKS RELATING TO THE PROFESSIONAL COURSES IN THE PHARMACEUTICAL CURRICULUM

Edited by Martha Jane K. Zachert and C. Larry Thomasson

This is a selected bibliography of professional books and reference works for pharmacy college libraries prepared and presented under the auspices of the Joint Committee on Pharmacy College Libraries. The materials included were selected by faculty members of member colleges of the American Association of Colleges of Pharmacy in response to a questionnaire in the fall of 1961. Respondents were referred to the 1955 bibliography "Books, Reference Works and Periodical Literature Recommended for College of Pharmacy Libraries" and asked to name material of value in the teaching of their own subject areas in these 3 categories: (1) that which had been omitted from the 1955 list, but which should be included; (2) that which has been published since the 1955 list; and (3) that which was included in the 1955 list, but which has outlived its usefulness and should be deleted. Respondents were told that they did not have to identify superseded editions as part of the last category, as the editors accepted responsibility for bringing edition information up-to-date.

Replies were received from 43 colleges of pharmacy (54 percent of the total membership of the AACP) representing contributions from approximately 600 individuals. The editors prepared a card file of the entries in the 1955 list, then interpolated into it the suggestions received on the questionnaires. All suggestions falling within the scope of the bibliography are included (with the exception of a scant half-dozen bibliographic puzzles which all our searching has failed to identify!). Though items were included on the basis of a single suggestion, deletions were not made on the same basis. Where the same deletion was suggested by a number of respondents, it was made. Where a deletion was suggested by only one, or a very few, respondents, the material was inspected by the editors and individual judgments were made by them. Both these policies stem from the assumption that the same course is taught in a variety of ways in the several colleges; and that, although any book of value to one faculty member has the potential to stimulate another, it does not follow that a book which has outlived its usefulness for one teacher has automatically outlived its usefulness for all teachers.

Following this compilation of suggestions for the bibliography, the editors checked all titles for latest editions, compiled the bibliographic citations, and arranged the bibliography. Works published since the faculty suggestions were submitted have been assessed. (No works published since December 31, 1962, are included.) Whenever possible, the books themselves have been examined;

*Permission to reprint this copyright material has been kindly granted by the American Journal of Pharmaceutical Education.

and, with and without the books in hand, reviews have been consulted. The most obviously valuable books have been included; those which must stand the test of actual use await a later bibliography. It is hoped that this total method, though cumbersome, will call to the attention of all faculty members a wide variety of works from which they may choose for their personal teaching. Obviously, there is no implication that all books included are recommended for every college of pharmacy library. Neither should the bibliography be used to evaluate any particular library. The editors have not hesitated to call on associates in the colleges of pharmacy for assistance in many ways, notably in the evaluation of suggested materials, and the arrangement of the bibliography.

In general, the bibliography follows the scope of its predecessors, while bringing them up-to-date and enlarging the number of entries. It includes the basic professional teaching areas of colleges of pharmacy: pharmacy, pharmaceutical chemistry, pharmacognosy, pharmacology, pharmacy administration, and history and ethics of pharmacy. It omits introductory and general material in the biological sciences, chemistry, and medicine. The bibliography emphasizes in-print materials in the English language, though both foreign language and out-of-print materials of major value are again included. The plan of arranging materials by subject area, used in earlier bibliographies, is followed in this one.

There are, however, several changes in scope and format from the earlier bibliographies which mark this one. Journals have been omitted because of the pending publication of a world list of pharmacy periodicals under the sponsorship of the American Society of Hospital Pharmacists. The scope has been enlarged to include materials useful in introducing students, both undergraduate and beginning graduate, to research methodology. This section is added because the amount of this kind of material suggested by faculty members shows they feel the need for inclusion of it. The fact that general materials of this nature were suggested in almost all of the specific subject areas indicates that an introduction to research can be, and is being taught in a variety of courses. Since the material is general in nature, and is being taught in different classroom settings, it does not properly belong in any specific subject area. Hence a separate section has been added. In this bibliography no attempt has been made to categorize materials into undergraduate and graduate classifications, former bibliography committees and our own judgment concurring in the futility of this exercise.

The biggest problem in editing this bibliography has been in deciding the limits of its scope. The suggestions from faculty members clearly showed that they are using, and finding valuable, a great deal of ancillary material. This is precisely the kind of material that the editors wanted the bibliography to locate; even so, it is necessary to set some limits. The policy which evolved is as follows:

1. Each subject area is defined according to the definition of that area established by *Blauch and Webster in The Pharmaceutical Curriculum*. To remind users of these definitions, they are included in the introduction to each section of the bibliography.

2. Reference books and textbooks for the basic sciences prerequisite to the professional curriculum are excluded. For example, *Gray's Anatomy* is a reference book which could easily be needed during the study of pharmacology. However, it is primarily for reference during the course in anatomy, which is a prerequisite course for pharmacology. Since there are bibliographic tools available for identifying reference and textbooks for the basic sciences, it was decided to omit these categories here and emphasize works designed for use with the professional courses. Some variation in this policy has been necessitated by the variation in publishing for the several professional areas. These variations are pointed out in the introductions to the sections.

3. Reference books and textbooks which emphasize application of the basic, prerequisite sciences to pharmacy and medicine are included. For example, *Best and Taylor's Physiological Basis of Medical Practice* is a standard text for a prerequisite course and could be excluded under the above policy. However, it emphasizes the application of physiological knowledge to medicine in such a way that it is valuable in the study of pharmacology, a professional course. Therefore, it is included, as are similar works in all areas.

4. Popularizations of both basic sciences and professional subjects are excluded. Granted they are often useful with the serious student; nevertheless, identification of such material was not the purpose of this bibliography.

In summary, the policy for the scope of this bibliography has been one of including all material attested by faculty members to be valuable in the teaching of their professional courses, but excluding those works, however useful, which are not designed primarily to contribute to these professional courses. If we have erred (and we are human!) we hope it is in the direction of inclusion rather

than exclusion. The value of the bibliography, we feel, comes from the wide range of materials suggested by faculty members and from the wisdom of our consultants in helping evaluate these suggestions.

Perhaps the greatest difference between this bibliography and the previous ones is in the format. In an effort to transmit more information about the materials than merely their authors, titles, and imprints, several changes have been made. The first is an amplification of the former subject classification. The titles submitted in each major category were studied and grouped, with the help of our consultants, to show relationships of the materials to each other, relationships to the pharmaceutical curriculum, subdivisions of subjects and specific subject approaches. There is no implication that this is a suitable classification of knowledge, or that it would be a suitable classification of these materials in a library. Where desirable, annotations have been added to show individual specialties or to indicate how a particular book differs significantly from others in its group. We have tried to use a combination of classification and annotation to give greater meaning and usefulness to the bibliography without allowing it to grow to unmanageable lengths. Annotations quoted from title pages, publishers' blurbs, Book Review Digest, and Technical Book Review Index are identified by appropriate abbreviations.

The subject classification has the disadvantage that many books are valuable in more than one area of the curriculum, and it is space-consuming to make many duplicate entries. We have attempted to alleviate the disadvantage in these ways. (1) Some books simply have to be duplicated. In these cases we have placed the main entry in the most obvious section, and used brief cross references from other sections. (2) Two subdivisions (physical chemistry-pharmacy and methods of assay) in 3 areas (pharmacy, pharmaceutical chemistry, and pharmacognosy) were so heavily duplicated in the suggestions from faculty members that some method other than cross references had to be devised to avoid duplicating entries. The suggestions for physical chemistry-pharmacy were duplicated by professors of pharmacy and by professors of pharmaceutical chemistry; those for methods of analysis were duplicated by professors of pharmaceutical chemistry and professors of pharmacognosy. In both these instances the books belong as properly to one major area as to the other, and any arbitrary decision about the placement of a main entry in one area would be as unsatisfactory to professors in the other area as to the editors. To solve this dilemma, the editors decided to place the section on physical chemistry-pharmacy between the section on pharmacy and the section on pharmaceutical chemistry, and the section on methods of analysis between the section on pharmaceutical chemistry and the section on pharmacognosy. Therefore the user of the bibliography must remember that material on pharmacy begins at the beginning of the section of that name and continues through the section called "Physical Chemistry" (items 1-190). Similarly, the material on pharmaceutical chemistry begins with the section called "Physical Chemistry," and continues through the section called "Methods of Analysis" (items 116-434); pharmacognosy begins with the section called "Methods of Analysis" and continues through that called "Pharmacognosy" (items 324-584). In other words, overlapping is substituted for duplication.

TABLE OF CONTENTS AND NUMBER OF ITEMS PER SECTION

	Items
I. Pharmacy, 115 (completed).....	1- 190
*II. Physical Chemistry, 75 (estimated).....	116- 190
*III. Pharmaceutical Chemistry, 134 (estimated).....	116- 434
*IV. Methods of Analysis, 110 (estimated).....	324- 434
V. Pharmacognosy, 150 (completed).....	324- 584
VI. Pharmacology, 215 (completed).....	585- 799
*VII. Pharmacy Administration, 150 (completed).....	800- 949
*VIII. History and Ethics of Pharmacy, 56 (estimated).....	950-1005
*IX. Introduction to Research, 20 (estimated).....	1006-1025

*These sections are, for reasons of brevity, not reprinted within this publication.

PHARMACY

"Pharmacy, as a division of the pharmaceutical curriculum, deals with the principles, processes, and techniques which are ultimately involved in the fabrication of drugs and drug preparations and with the application of that knowledge and those techniques to the compounding and dispensing of prescriptions."¹

Directories

Drug Compendia

Official

Nonofficial

Introduction to Pharmacy

Professional Orientation

Terminology

Pharmacy Arithmetic

Pharmacy Principles and Techniques

General Principles and Techniques

Dispensing Texts

Emulsion Technology

Laboratory Manuals

Handbooks

Hospital Pharmacy

Manufacturing Pharmacy

General

Perfumery and Flavors

Tablet Manufacture

Packaging

Sterilization

Cosmetics and Dermatologic Pharmacy

General Works in Cosmetics

Aids to Dermatologic Pharmacy

Veterinary Pharmacy

General

Veterinary Anatomy

Veterinary Pathology

Veterinary Medicine

Veterinary Pharmacology and Therapeutics

Directories

American Association of Colleges of Pharmacy, Roster of Teaching Personnel in Member Colleges, The Association. Irregular (sometimes annual), free to members.
American Foundation for Pharmaceutical Education, Roster, The Foundation. Annual.

Includes officers, members, committees plus recipients of fellowships, scholarships, and awards.

American Pharmaceutical Association, Journal, Directory Issue, The Association. Annual (currently January), single copies \$1.00.

Formerly issued irregularly as special supplement to Scientific Edition of the Journal.

Hayes Druggists' Directory and Commercial Reference Book, Hayes, 1951- . Annual, \$20.00.

Drug Compendia

Official.

Nonofficial.

Official

Only English language compendia are listed here. For official compendia in other languages, see: Irene M. Streiby, and Marjorie C. Spencer, National and International Pharmacopoeias: a Checklist, Bulletin of the Medical Library Association 40:153-161 (1952), and supplement, Bulletin of the Medical Library Association 45:410-420 (1957).

Official: Canada

Canadian Formulary, 1949 ed., Canadian Pharmaceutical Association, 1949. \$3.00; \$4.00 with French addendum.

Revision in preparation 1962.

¹ Blanch, Lloyd E. and Webster, George L., The Pharmaceutical Curriculum, American Council on Education, 1952, p. 135.

Official: Great Britain

British Pharmacopoeia 1958. Published for the General Medical Council by the Pharmaceutical Press, 1958. 63s.

Official: United States

National Formulary, American Pharmaceutical Association, 1888-1st-11th, 1960, \$9.00.

Interim Revision Announcements issued irregularly as separates and as releases to the pharmaceutical press, including the periodicals of the American Pharmaceutical Association.

Pharmacopoeia of the United States of America, United States Pharmacopoeial Convention, 1820-19-1st-16th, Mack, 1960, \$10.00.

"For changes of relatively limited application and interest, Interim Revision Announcements in the form of releases to the pharmaceutical press are chosen, especially if prompt effectiveness is a consideration. For more extensive changes and the publication of new monographs, supplements are used; and each supplement includes also the entire content of all Interim Revision Announcements released since publication of the previous supplement. These are distributed without additional charge to all who return the 'official order form' for supplements." Preface.

Nonofficial

Because of the availability of a bibliography including nonofficial compendia in languages other than English these are omitted from this list (except for a few major ones published since the original bibliography was compiled). See: Drug Information Sources, compiled by the Pharmaceutical Section, Science-Technology Division, Special Libraries Association, American Journal of Pharmacy 129:4-10, 59-64, 95-101, 128-134, 172-176, 211-216, 257-261, 303-306, 372-377 (1957); 130:102-104, 345-351 (1958). Also available in reprint form. Revision of this bibliography is in progress.

Accepted Dental Remedies, American Dental Association, 1936- . Annual. \$3.00.

Contains (1) drugs of recognized value in dentistry, (2) drugs of uncertain status more recently proposed for use by the dentist, and (3) some drugs once employed extensively but now generally regarded as obsolete. Also contains listing of accepted dosage forms.

American Druggist Blue Book, American Druggist, 19 - . Annual.

Product information for pharmaceuticals, biologicals, botanicals, proprietaries, cosmetics. Listed by trade and manufacturers' names. Includes form, size, price, sometimes composition and use. Symbols indicate various classes of prescription and narcotic drugs.

American Hospital Formulary Service, American Society of Hospital Pharmacists, 1959- . Initially \$15.00 including binder and supplementary service for one year; annual supplements \$5.00.

Loose-leaf; continuous revision.

British National Formulary, Standard Ed., Pharmaceutical, 1960. 7s 6d.

Arranged by pharmaceutical forms. Also available is Alternative Edition arranged on a pharmacological basis (8s). Either edition available interleaved at slightly higher price.

Compendium of Pharmaceutical Specialties, Canada, 1960, ed. by F. N. Hughes, Canadian Pharmaceutical Association, 1961- . \$9.00, including semiannual supplements.

Basic volume scheduled for revision 1963.

Dispensatory of the United States of America, 25th ed. by Arthur Osol, et al., Lippincott, 1955-1960. 2v. in 1. \$30.00.

Arranged in 3 parts: (1) individual monographs of drugs recognized by the USP, BP, IP, and NF; (2) individual monographs on drugs not official in the preceding compendia; and (3) a section on the use of drugs and biological products in veterinary practice.

Drug Topics Red Book, Topics Publishing Co., 1897- . Annual. 1962, \$9.00.

Product information for all types of drug store merchandise—pharmaceuticals, biologicals, botanicals, proprietaries, cosmetics, toilet articles, sundries. Listed by trade, manufacturers, or generic name. Includes form, size, price, sometimes

composition and use. Symbols indicate various classes of prescription and narcotic drugs.

Earlier titles: Druggists Circular Price Book; Drug Topics Price Books.

Drugs in Current Use, ed. by Walter Modell, Springer, 1955- . v. 1-
Annual, \$2.25.

Alphabetical listing of drugs currently in use in clinical medicine. Listed by trade and generic names. Provides concise statement of the action and use, physical properties, mode of administration, dose, and preparation.

Facts and Comparisons, ed. by Erwin K. Kastrup, Kastrup, 1944- . Initially \$11.00 including binder and revision service for one year; revision service annually thereafter \$5.00.

Loose-leaf; continuous revisions issued monthly. Products listed in therapeutic groups for comparison. Indexed pharmacologically and by generic and trade names.

Helwig, Burghard, *Moderne Arzneimittel: Eine Spezialitätenkunde nach Indikationsgebieten für Ärzte und Apotheker*, 2d ed., Wissenschaftliche, 1961. DM 148.

Index Nominum, Societe Suisse de Pharmacie, 1960. \$7.50. Supplementum Primum, 1962, \$3.75.

Part of *Subsidia Pharmaceutica*. Truly international, very useful loose-leaf service. All trade names are gathered together under the generic names of given products. Chemical names also listed.

Marler, E. E. J., *Pharmacological and Chemical Synonyms: A Collection of More Than 13,000 Names of Drugs and Other Compounds Drawn from the Medical Literature of the World*, 3d ed., Excerpta Medica, 1961. \$5.00.

Martindale, William, *Extra Pharmacopoeia, Pharmaceutical*, v. 1, 24th ed., 1958, 65s; v. 2, 23d ed., 1955, 57s. 6d.; supplement 1961, 32s. 6d.

Uniquely useful for several reasons: literature citations, discussion of toxicity and certain other material, groupings of drugs with all known generic and trade names (often including American and Continental names).

Merck Index of Chemicals and Drugs, 7th ed., Merck, 1960. \$12.00.

Approximately 10,000 descriptions of chemicals and drugs, with uses and dosages. Appendix includes tables of radioactive isotopes, calories in foods, boiling temperatures, isotonic solutions, saturated solutions, and indicators. Sections on organic name reactions, ion exchange materials, and chromatographic absorbents.

Modern Drug Encyclopedia and Therapeutic Index, 8th ed., Donnelley, 1961.

Monthly supplement, *Modern Drugs*. \$17.50, including supplements.

Descriptions of established preparations listed by trade names. Three indexes: (1) therapeutic, including generic and chemical names; (2) manufacturers and distributors; (3) general. New preparations covered in supplementary service with cumulative index.

New and Nonofficial Drugs, Lippincott, 1958- . Annual. \$4.00.

Formerly *New and Nonofficial Remedies, 1909-1957*.

"An annual compilation of available information on drugs, including their therapeutic, prophylactic and diagnostic status, as evaluated by the Council on Drugs of the American Medical Association." t.p.

Pharmaceutical Recipe Book, 3d ed., American Pharmaceutical Association, 1943. o.p.

Formulary of nonofficial therapeutic, toilet and miscellaneous preparations.

Pharmacopoeia Internationalis, International Pharmacopoeia, World Health Organization, 1951-1959, 2 v. plus supplement. From Columbia University Press, International Documents Service, v. 1, \$5.00; v. 2, \$6.75; suppl., \$5.00; set, \$14.00.

pharmIndex, Skyline, 1959- . Initially \$20.00 including binder and supplementary service for one year; supplementary service annually thereafter, \$20.00.

Loose-leaf; supplements issued twice monthly. A product information system unique in that material is filed by date. Products located by a series of indexes: trade name, manufacturer, generic, therapeutic, and products pending. Based on a cycle of 24 months of cumulative issues.

Physician's Desk Reference to Pharmaceutical Specialties and Biologicals, Medical Economics, 1947- . Annual, quarterly supplements. \$6.00.

Contains 6 sections: (1) trade name index; (2) drug, chemical, and pharmacologic index; (3) therapeutic index; (4) product identification of capsules and tablets; (5) main listing of pharmaceutical specialties, biologicals, and antibiotics with complete information by manufacturer; (6) manufacturers' services for the physician. Limited by the fact that drugs are selected for inclusion by their manufacturers. It is not an all-inclusive list, and should not be regarded as an authority on the availability of specific drugs.

Remington's Practice of Pharmacy. (See Pharmacy Principles and Techniques—General Principles and Techniques)

Many drug specialties and names of compounding, antiseptic, and other agents used in drug formulas are included here that are difficult to find in other places.

Unlisted Drugs, v. 1- , Special Libraries Association, Pharmaceutical Section, Science-Technology Division, 1949- . \$10.00 annually.

Monthly list of new drugs which have not yet appeared in standard compendia. Entered by number and/or name of drug. Gives composition, action, equivalent, dosage, manufacturer, and literature reference. Indexed semiannually.

Wilson, Charles O., and Tony E. Jones, American Drug Index, Lippincott, 1956- . Annual. \$6.75.

Dictionary of pharmaceuticals by generic name, brand name, chemical name, official name, and synonyms. Data given under brand name with cross references from others. Gives pharmaceutical form, size, dosage, use, and manufacturer for each. A special cross-indexing feature permits the finding of drugs or combinations when only one major ingredient is known. Includes products no longer commercially available.

Introduction to Pharmacy

Professional Orientation

Terminology

Pharmacy Arithmetic

Professional Orientation

These books generally contain historical background, the structure of the profession, the importance of pharmacy to the health field and its relationship to other specialties, pharmaceutical vocations, and pharmaceutical literature.

Burlage, Henry M., C. O. Lee, and L. W. Rising, Orientation to Pharmacy, McGraw, 1959. \$6.95.

Clark, Ralph W., Orientation in Pharmacy: An Overview, 2d ed., Lea, 1961. \$4.50.

Deno, Richard A., T. D. Rowe, and D. C. Brodie, Profession of Pharmacy: An Introductory Textbook, Lippincott, 1959. \$6.50.

Doyle, Paul A., ed., Readings in Pharmacy, Interscience, 1962. \$7.95.

Terminology

Gidley, William, and J. R. Moreno, Pharmaceutical and Medical Latin, Hemphill, 1959. \$5.25.

Pharmacy Arithmetic

Bellafore, Ignatius J., Pharmaceutical Arithmetic, 4th ed., Bellafore, 1960. Paper, \$4.25.

Bradley, Willis T., et al., Pharmaceutical Calculations, 3d ed. Lea, 1957. \$4.50.

Green, Marvin H., International and Metric Units of Measurements, Chemical, 1961. \$6.00.

Huston, Mervyn J., Textbook of Pharmaceutical Arithmetic, Canadian Pharmaceutical Association, 1959. \$3.00.

Rouse, Sue H., and George M. Webber, Calculations in Pharmacy, Lippincott, 1961. \$5.00.

Stevens' Arithmetic of Pharmacy, 8th ed., by Charles H. Stocking, and Elmon L. Cataline, Van Nostrand, 1952. \$3.50.

Pharmacy Principles and Techniques

General Principles and Techniques
 Dispensing Texts
 Emulsion Technology
 Laboratory Manuals
 Handbooks

General Principles and Techniques

Bentley's Textbook of Pharmaceutics, 7th ed. by Harold Davis, Williams and Wilkins, 1962. \$10.50.

Burlage, Henry M., ed., Introduction to Pharmacy, 3d ed., McGraw, 1954. \$9.50.
 Formerly published as Fundamental Principles and Processes of Pharmacy, 2d ed., 1949.

Hagers Handbuch der Pharmazeutischen Praxis, 2d ed., Springer, 1938. (Reprinted 1949), 2v. suppl. 1, 1944; suppl. 2 (in 2 parts), 1958. v.1, 2, suppl. 1, \$18.75 each; suppl. 2 (both parts) \$56.00.

Lyman, Rufus A., and J. B. Sprowls, Jr., eds., American Pharmacy, Lippincott, 1947-1951. 2v. o.p.

v. 1, Fundamental Principles and Practices, 3d ed., 1951; v.2, Advanced Pharmacy, 1947.

For current edition, see Sprowls, J. B., American Pharmacy, (below).

Remington's Practice of Pharmacy, 12th ed., edited by Eric W. Martin, et al., Mack, 1960. \$22.50.

Sprowls, Joseph B., Jr., American Pharmacy: Textbook of Pharmaceutical Principles, Processes, and Preparations, 5th ed., Lippincott, 1960. \$10.75.

This is the fifth edition in the line of descent from Lyman and Sprowls American Pharmacy (above). The fourth edition, also one volume, carried the title American Pharmacy: Textbook of Pharmaceutical Principles, Processes and Preparations (Lippincott, 1955).

Dispensing Textbooks

Cooper, John W., and F. J. Dyer, Dispensing for Pharmaceutical Students. 9th ed. by John W. Cooper and Colin Dunn. Pitman, 1948. 16s.

Husa, William J., Pharmaceutical Dispensing, 4th ed, Husa, 1951. o.p.

For current edition, see Husa's Pharmaceutical Dispensing (below)

Husa's Pharmaceutical Dispensing, 5th ed. edited by Eric W. Martin, Mack, 1959. \$12.00.

Lyman, Rufus A., et al., Pharmaceutical Compounding and Dispensing, Lippincott, 1949. o.p.

For current edition, see Lyman, R. A., Textbook of Pharmaceutical Compounding and Dispensing. (below)

Lyman, Rufus A., and J. B. Sprowls, Jr., Textbook of Pharmaceutical Compounding and Dispensing, 2d ed., Lippincott, 1955. \$9.75.

First edition had title Pharmaceutical Compounding and Dispensing.

Scoville's The Art of Compounding, 9th ed. edited by Glenn L. Jenkins, et al., McGraw, 1957. \$12.00.

Emulsion Technology

Becher, Paul, Emulsions: Theory and Practice, Reinhold, 1957. \$12.50.

Becher, Paul, Principles of Emulsion Technology, Reinhold, 1955. \$4.50.

Clayton, William, Theory of Emulsions and their Technical Treatment, 5th ed. by C. G. Sumner, McGraw, 1954. \$15.00.

Spalton, Lawrence M., Pharmaceutical Emulsions and Emulsifying Agents, 3d ed. rev. by Robert F. White, Chemist and Druggist, 1959. 9s.

Laboratory Manuals

Burlage, Henry M., et al., Laboratory Manual for Introduction to Pharmacy, 3d ed., McGraw, 1956. \$4.50.

A revision of Laboratory Manual for Principles and Processes of Pharmacy.

Parrott, Eugene L., and Witold Saski, Experimental Pharmaceutical Technology, Burgess, 1961. \$5.75.

Plein, Elmer M., Fundamentals of Dispensing Pharmacy (A Laboratory Manual), 4th ed., University of Washington Press, 1955. o.p.

5th edition in preparation summer 1962.

Weise, Gail A., Pharmaceutical Laboratory Manual, Brown, 1958. \$4.00.

Handbooks

- Mill, Ralph J., Pharmacy State Board Questions and Answers, Clark and Wilson, 1947- . Annual. \$3.25.
 Pharmaceutical Pocket Book 1960, Pharmaceutical, 1960. \$7.00.
 Pharmacy Examination Review Book, Medical Examination, 1960- . v. 1- . \$6.00.

Hospital Pharmacy

American Hospital Formulary Service (see Pharmacy—Drug Compendia—Non-official).

Berman, Alex, and J. J. Zugich, Pharmacy Service in Smaller Hospitals, College of Pharmacy, University of Michigan, 1958. \$3.00.

Comprehensive Bibliography on Hospital Pharmacy, compiled by Gloria N. Franke, American Society of Hospital Pharmacists, 1951- .

Published at irregular intervals in the Bulletin of the Society and the American Journal of Hospital Pharmacy. Basic compilation, 1951; supplements 1953, 1955, 1957, 1961, 1962. Reprints available at \$1.00. 1961 o.p.

Hospital Literature Index, v. 1- , American Hospital Association, 1945- . \$10.00 annually.

v. 1, 1945-1949; v. 2, 1950-1954; v. 3, 1955-1959. v. 1, o.p.; v. 2 and v. 3, \$22.50 set.

"An author-subject index of literature about hospital administration, planning and financing, and administrative aspects of the medical, paramedical and prepayment fields. References to articles written in English and appearing in more than 400 journals including those pertinent in peripheral and general interest periodicals * * * includes significant books. Published semiannually 1945-1961 and cumulated every 5 years. Beginning 1962 becomes quarterly with fourth issue an annual cumulation." [Publisher's statement]

MacEachern, Malcolm T., Hospital Organization and Management, 3d ed., Physician's Record Co., 1957. \$18.75.

McGibony, John R., Principles of Hospital Administration, Putnam, 1952. \$7.50.

Recent Developments in the Sterilisation of Surgical Materials, Pharmaceutical, 1961. 30s.

Report of a symposium organized by the Department of Pharmaceutical Sciences of the Pharmaceutical Society of Great Britain and Smith and Nephew Research, Ltd., at the School of Pharmacy, University of London, April 11-13, 1961.

*Manufacturing Pharmacy**General*

Perfumery and Flavors

Tablet Manufacture

Packaging

Sterilization

General

The term "General" as used here does not mean that the books listed are all-inclusive in their treatment of manufacturing pharmacy, but, rather, that the content of the books is pertinent to manufacturing pharmacy in several ways.

Belanger, Emil J., Modern Manufacturing Formulary, Chemical, 1957. \$10.00.

"Food products, flavoring extracts * * * cosmetic specialties and toilet preparations, medicinal preparations, veterinary remedies * * *"—TBRI

Marshall, W. R., Jr., Atomization of Spray Drying, American Institute of Chemical Engineers, 1954. Paper, \$3.00 to AICE members; \$15.00 to nonmembers.

v. 50 of Chemical Engineering Progress Monograph Series.

Schwartz, Anthony M., and James W. Perry, Surface Active Agents and Detergents, Interscience, 1949-1958. v. 1, 1949, \$15.00; v. 2, 1958, \$22.50.

Perfumery and Flavors

This section is limited to works which apply basic psychology and physiology to the manufacture of drug products, even though this excludes such outstanding works as Buddenbrock's *The Senses*. (Wolfgang von Buddenbrock, *The Senses*, University of Michigan Press, 1958.)

Crocker, Ernest C., *Flavor*, McGraw, 1945. o.p.

"A convenient reference source of information on any aspect of odor and taste. It contains a philosophy of flavor perception, the chemistry of flavoring agents and

condiments and methods of developing and retaining flavor in processed foods and other products as well as methods of detection, correction and prevention of undesirable or 'off' flavors in commercial products."—BRD

Little, Arthur D., *Flavor Research and Food Acceptance*, Reinhold, 1958. \$10.00.

Tablet Manufacture

Arends, Johannes, *Die Tablettenfabrikation und ihre Maschinellen Hilfsmittel*, 5th ed., Springer, 1950. o.p.

Clarkson, Ronald, *Tablet Coating*, Drug and Cosmetic Industry, 1951. o.p.

Little, Arthur D., and K. A. Mitchell, *Tablet Making*, Northern, 1949. o.p.

New edition in preparation, to be published by Manesty Machines.

Silver, J. A., and Ronald Clarkson, *Manufacture of Compressed Tablets*, Drug and Cosmetic Industry, 1944. o.p.

Packaging

Herzka, Alfred, and Jack Pickthall, *Pressurized Packaging (Aerosols)*, 2d ed., Academic, 1961. \$15.00.

Shepherd, Herman R., ed., *Aerosols: Science and Technology*, Interscience, 1961. \$22.50.

Sterilization

Perkins, John J., *Principles and Methods of Sterilization*, Thomas, 1956. \$9.00.

Reddish, George F., *Antiseptics, Disinfectants, Fungicides, and Chemical and Physical Sterilization*, 2d ed., Lea, 1957. \$15.00.

Sykes, George, *Disinfection and Sterilization*, Van Nostrand, 1958. \$11.75.

Cosmetics and Dermatologic Pharmacy

General Works in Cosmetics

Aids to Dermatologic Pharmacy

General Works in Cosmetics

DeNavarre, Maison G., *Chemistry and Manufacture of Cosmetics*, 2d ed., Van Nostrand, 1961— . v. 1— . (Projected in 4 vols.) v. 1, *Basic Substances and Methods*, 1961, \$8.50; v. 2, *Cosmetic Materials*, 1962, \$10.75; v. 3, *Make-up*, in preparation 1962; v. 4, *Miscellaneous Cosmetics*, in preparation 1962.

De Navarre, Maison G., *International Encyclopedia of Cosmetic Material Trade Names*, Moore, 1957. \$7.50.

Divided into main section which lists materials by trade names, product classification section, and directory of manufacturers.

Harry, Ralph G., *Principles and Practice of Modern Cosmetics*, Leonard Hill, 1950-1955, 2 v. v. 1, *Modern Cosmeticology*, 4th ed., 1955, 65s; v. 2, *Cosmetic Materials*, 1950. o.p.

Lockie, Laurence, *Perfumes and Cosmetics*, Lockie, 1959. From University of Buffalo Bookstore, \$2.75.

Poucher, William A., *Perfumes, Cosmetics and Soaps*, Van Nostrand, 1959-1960, 3 v. v. 1, *Dictionary of Raw Materials*, 6th ed., 1959, \$13.50; v. 2, *Production, Manufacture and Application of Perfumes of All Types*, 7th ed., 1959, \$13.50; v. 3, *Treatise on Cosmetics*, 7th ed., 1960, \$8.50.

Sagarin, Edward, ed., *Cosmetics: Science and Technology*, Interscience, 1957. \$19.50.

Aids to Dermatologic Pharmacy

Hoffman, Isaac K., *New Unguent Bases and Lotions*, Chemical, 1957. \$4.75.

Lerner, Marguerite R., and A. B. Lerner, *Dermatologic Medications*, 2d ed. Year Book, 1960. \$6.00.

Pascher, Frances, ed., *Dermatologic Formulary*, 2d ed., Hoeber, 1957. \$4.00.

Polano, Machiel K., *Skin Therapeutics: Prescription and Preparation*, Am. Elsevier, 1952. \$8.00.

Veterinary Pharmacy

General

Veterinary Anatomy

Veterinary Pathology

Veterinary Medicine

Veterinary Pharmacology and Therapeutics

The fact that the course in veterinary pharmacy as given in pharmacy schools gives a cross-section of information relating to veterinary medicine is reflected in the books in this section. Although not all are, strictly speaking, pharmacy, they are included here because of their importance to the course. A course outline and discussion by Dr. N. M. Ferguson (Animal Health Pharmacy, American Journal of Pharmaceutical Education 24:314-315, 1960) make this very clear.

General

Belanger, Emil J., Drug and Specialty Formulas: A Selected Collection of Tested, Modern and Practical Formulas for Medicinal, Household, Industrial, Commercial, Veterinary, Cosmetic, and Food Specialties. Chemical, 1941. o.p.

Chemist's Veterinary Handbook: A Survey of Modern Methods in Veterinary Medicine, Including Diseases and Treatment, 11th ed., Morgan, 1955.

Title and publisher vary in earlier editions.

Merck Poultry Service Manual, Merck, 1958. o.p.

Merck Veterinary Manual, 2d ed., Merck, 1961. \$9.75.

St. Louis College of Pharmacy and Allied Sciences, Abstracts of Lectures Comprising the Second Graduate Course in Animal Health Pharmacy, The College, 1947. o.p.

Seiden, Rudolph, and W. J. Gough, Livestock Health Encyclopedia, 2d ed., Springer, 1961. \$9.50.

Veterinary Anatomy

Sisson, Septimus, Anatomy of Domestic Animals, 4th ed., revised by James D. Grossman, Saunders, 1953. \$15.00.

Veterinary Pathology

Barger, Edgar H., et al., Diseases and Parasites of Poultry, 5th ed., Lea, 1958. \$5.00.

Brumley, Oscar V., Textbook of the Diseases of the Small Domestic Animals, 4th ed., Lea, 1943. \$5.00.

Smith, Hilton A., and Thomas C. Jones, Veterinary Pathology, 2d ed., Lea, 1961. \$17.50.

U.S. Department of Agriculture, Animal Diseases (Yearbook of Agriculture 1956), GPO, 1956. \$2.00.

Veterinary Medicine

Blood, Douglas C., and J. A. Henderson, Veterinary Medicine, Williams and Wilkins, 1960. \$15.00.

Kirk, Hamilton, Index of Treatment in Small Animal Practice, 4th ed., Williams and Wilkins, in preparation 1962.

U.S. Department of Agriculture, Keeping Livestock Healthy (Yearbook of Agriculture 1942), GPO, 1942. o.p.

Whitlock, John F., Diagnosis of Veterinary Parasitisms, Lea, 1960. \$10.00.

Veterinary Pharmacology and Therapeutics

Daykin, P. W., Veterinary Applied Pharmacology and Therapeutics, Williams and Wilkins, 1960. \$11.00.

Alexander, Frank, Introduction to Veterinary Pharmacology, Williams and Wilkins, 1960. \$4.75.

Seiden, Rudolph, Veterinary Drugs in Current Use, Springer, 1961. \$2.50.

Veterinary Drug Encyclopedia, 10th ed., edited by Hadley C. Stephenson, and S. G. Mittelstaedt, Drug Publications, 1962. \$7.50.

PHARMACOGNOSY

"Pharmacognosy * * * deals with the production, processing, qualities, and general uses of products of biological origin having current medicinal and pharmaceutical importance. It is concerned with their biological history and activity, as well as with problems of collection, processing, and commerce. The subject also embraces the study of constituents, extraction, microscopy, identification, preservation, and protection of these products and their adaptation to pharmaceutical, medicinal, and public health uses * * *. In a broad sense pharmacognosy includes * * * products derivable from the lower forms of life, the microorganisms. Many other materials of plant and animal origin, not used for medicinal purposes * * * have been regarded as within the field of pharmacognosy."²

General

Textbooks

Production and Commerce

Chemical Classes of Active Constituents

1. Carbohydrates
2. Glycosides
3. Tannins
4. Fats, Oils and Waxes
5. Essential Oils
6. Protein Substances
7. Alkaloids
8. Steroids
9. Antibiotics: Microbiology and Mycology

Plant Chemistry

Plant Biochemistry

Plant Physiology

Plant Taxonomy

Anatomy, Histology and Morphology of Plants

Pesticides, Herbicides, and Plant Diseases

Miscellaneous

General

de Laszlo, Henry G., *Library of Medicinal Plants*, Heffer, 1958, from Lundberg. \$2.00.

Berger, Franz., *Handbuch der Drogenkunde*, Maudrich, 1949- . v. 1- (projected in 6 vols.) v. 1, *Untersuchungsmethoden. Cortices Flores*, 1949, DM 55.-; v. 2, *Folia*, 1950, DM 55.-; v. 3, *Fructus-Ligna*, 1952, DM 65.-; v. 4, *Herbae*, 1954, DM 55.-; v. 5, *Radices*, 1960, DM 85.-; v. 6, in preparation 1962.

Fluckiger, Friedrich A., and Daniel Hansbury, *Pharmacographia: A History of the Principal Drugs of Vegetable Origin, met with in Great Britain and British India*, 2d ed., Macmillan, 1879. o.p.

Heeger, Erich F., *Handbuch des Arznei- und Gewürzpflanzenbaues, Drogengewinnung*, Deutscher Bauern, 1956. DM-Ost 45.-.

Hocking, George M., *A Dictionary of Terms in Pharmacognosy and Other Divisions of Economic Botany*, Thomas, 1955. \$9.75.

Hoppe, Heinz A., *Drogenkunde: Handbuch der Pflanzlichen und Tierischen Rohstoffe*, 7th ed., Cram, 1958. DM 78.-.

In German, English, French, Portuguese and Spanish.

Jackson, Benjamin D., *Glossary of Botanic Terms*, 4th ed., Hafner, 1953. \$4.50.

Karrer, Walter, *Konstitution und Vorkommen der Organischen Pflanzenstoffe (Exclusive Alkaloide)*, Birkhäuser, 1958. DM 136.-.

Lehrbücher und Monographien aus dem Gebiete der exakten Wissenschaften. Chemische Reihe. Bd. \$12.

Kroeber, Ludwig, and Hans Seel, *Rezeptbuch der Pflanzenheilkunde*, 11th ed., Hippokrates, 1959. DM 22.50.

Maisch, John M., *A Manual of Organic Materia Medica*, Lea, 1895. o.p.

¹ Blauch, Lloyd E. and Webster, George L., *The Pharmaceutical Curriculum*, American Council on Education, 1952, p. 103.

- Meyer, Arth., *Wissenschaftliche Drogenkunde*, Gaertner, 1891. o.p.
- Steinmetz, Eugene F., *Codex Vegetabilis * * * Botanical Drugs and Spices, Trade-Dictionary in 5 Languages (Latin, Dutch, German, English and French) with the Botanical Origin and with the Families*, 2d ed., Steinmetz, 1957. From Heinman, \$18.50.
- Tschirch, Alexander, *Handbuch der Pharmakognosie*, 2d ed., Tauchnitz, 1930-1936? 3v.?
- Tschirch, Alexander, and Erich Stock, *Die Harze: die Botanischen und Chemischen Grundlagen unserer Kenntnisse über die Bildung, die Entwicklung und die Zusammensetzung der Pflanzlichen Exkrete*, Gebrüder Borntraeger, 1933-1936, 2v. in 4, Photo-lithoprint reproduction from Edwards Brothers, 1943. o.p.
- Uphof, Johannes C. T., *Dictionary of Economic Plants*, Hafner, 1959. \$10.00.
- Wehmer, Carl, *Die Pflanzenstoffe, Botanisch-systematisch bearbeitet; bestandteile und zusammensetzung der einzelnen pflanzen und deren produckte*, Phano-gamen, 2d ed., Fischer, 1929-1935. Reprinted by Edwards, 1950, 2v. and suppl. o.p.
- Weiss, Rud. F., *Lehrbuch der Phytotherapie*, 2d ed., Hippokrates, 1960. DM 56.-.
- Originally published under title *Pflanzenheilkunde in der ärztlichen Praxis*.

Textbooks

- Denston, Tom C., *Textbook of Pharmacognosy*, 5th ed., Pitman, 1951. Reprinted with corrections, 1958. o.p.
- Ferguson, Noel M., *A Textbook of Pharmacognosy*, Macmillan, 1956. \$7.50.
- Fischer, Robert, and Willibald Hauser, *Praktikum der Pharmakognosie*, 3d ed., Springer, 1952. o.p.
- Gathercoal, Edmund N., and E. H. Wirth, *Pharmacognosy*, 4th ed. by Edward P. Claus, Lea, 1961. \$12.50.
- Hebert, Brian E., and K. W. Ellery, *Textbook of Practical Pharmacognosy*, Baillière, 1948. o.p.
- Kraemer, Henry. *Kraemer's Scientific and Applied Pharmacognosy*. 3d ed. by Edwin L. Newcomb, et al., Wiley, 1928. o.p.
- Pratt, Robertson, and Heber W. Youngken, Jr., *Pharmacognosy*, 2d ed., Lippincott, 1956. o.p.
- Quimby, Maynard W., *Pharmacognosy Laboratory Manual*, Burgess, 1953. o.p.
- Ramstad, Egil, *Modern Pharmacognosy*, McGraw, 1959. \$11.00.
- Trease, George E., *Textbook of Pharmacognosy*, 8th ed., Williams and Wilkins, 1961. \$9.00.
- Tyler, Varro E., Jr., and Arthur E. Schwarting, *Experimental Pharmacognosy*, 3d ed., Burgess, 1962. Paper, \$3.25.
- Wallis, Thomas E., *Practical Pharmacognosy*, 6th ed., Churchill, 1953. o.p.
- Wallis, Thomas E., *Textbook of Pharmacognosy*, 4th ed., Little, 1960. \$10.00.
- Youngken, Heber W., *Textbook of Pharmaceutical Botany*, 7th ed., McGraw, 1951. \$7.00.
- Youngken, Heber W., *Textbook of Pharmacognosy*, 6th ed., McGraw, 1948, o.p.

Production and Commerce

- Steinmetz, Eugene F., *Drug Guide for Importers, Exporters, Dealers, etc. of Botanical Drugs and Spices Throughout the World*, Steinmetz, 1959. From Heinman, \$6.00.
- U.S. Treasury Department, Narcotics Bureau, Regulation No. 5. *Relating to Importation, Manufacture, Production, Compounding, Sale, Dealing in, Dispensing and Giving Away of Opium, Coca Leaves, Isonipicaine or Opiates or any Compound, Manufacture, Salt, Derivative, or Preparation Thereof under Act of December 17, 1914, as amended by [various sections of certain acts]. Narcotic-Internal Revenue Regulations, GPO, reprinted with amendments, 1957. \$45.*

Chemical Classes of Active Constituents

Carbohydrates
 Glycosides
 Tannins
 Fats, Oils and Waxes
 Essential Oils
 Protein Substances
 Alkaloids
 Steroids
 Antibiotics: Microbiology and Mycology

Carbohydrates

- Howes, Frank N., *Vegetable Gums and Resins*, Ronald, 1949. \$6.00.
 Kertesz, Zoltan I., *Pectic Substances*, Interscience, 1951. \$16.50.
 Mantell, Charles L., *Water-soluble Gums*, Reinhold, 1947. o.p.
 Pigman, Ward W., ed., *The Carbohydrates: Chemistry, Biochemistry, Physiology*, Academic, 1957. \$20.00.
 Smith, Frederick, and Rex Montgomery, *Chemistry of Plant Gums and Mucilages and Some Related Polysaccharides*, Reinhold, 1959. \$18.00.
 Whistler, Roy, and James BeMiller, eds., *Industrial Gums: Polysaccharides and Their Derivatives*, Academic, 1959. \$25.00.

Glycosides

- Griffith, John Q., Jr., et al., *Rutin and Related Flavonoids: Chemistry, Pharmacology and Chemical Applications*, Mack, 1955. \$7.50.
 Hoch, John H., *A Survey of Cardiac Glycosides and Genins*, University of South Carolina Press, 1961.
 McIlroy, Robert J., *Plant Glycosides*, St. Martins, 1951. \$4.50.
 Stoll, Arthur, *Cardiac Glycosides*, Pharmaceutical, 1937. o.p.

Tannins

- Howes, Frank N., *Vegetable Tanning Materials*, Butterworth, 1953. \$5.50.

Fats, Oils and Waxes

- Bailey, Alton E., *Industrial Oil and Fat Products (Fats and Oils)*, 2d ed., Interscience, 1951. o.p.
 Deuel, Harry J., Jr., *The Lipids: Their Chemistry and Biochemistry*, Interscience, 1951-55, 3v. v. 1, Chemistry, 1951, \$25.00; v. 2, Biochemistry, 1955, \$28.50; v. 3, Biochemistry, 1957, \$28.50; set, \$75.00.
 Eekey, Eddy W., and L. P. Miller, *Vegetable Fats and Oils*, Reinhold, 1954. \$17.50.
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PHARMACOLOGY

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Reviews

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Bacq, Zenon M., and P. Alexander, *Fundamentals of Radiobiology*, 2d ed., Pergamon, 1961. \$12.00.

Medical Physiology: Cell Physiology

Brachet, Jean, and Alfred E. Mirsky, *The Cell: Biochemistry, Physiology, Morphology*, Academic, 1959-. v. 1- . (Projected in 6 vols.) v. 1, *Methods: Problems of Cell Biology*, 1959, \$22.00; v. 2, *Cells and Their Component Parts*, 1961, \$25.00; v. 3, *Meiosis and Mitosis*, 1961, \$12.00; v. 4, *Specialized Cells*, pt. 1, 1960, \$18.00; v. 5, *Specialized Cells*, pt. 2, 1961, \$20.00; v. 6 in preparation 1962.
 Giese, Arthur C., *Cell Physiology*, 2d ed., Saunders, in preparation 1962.

McElroy, William D., *Cellular Physiology and Biochemistry*, Prentice, 1961. \$3.75, paper, \$1.75.

Nachmansohn, David, ed., *Molecular Biology: Elementary Processes of Nerve Conduction and Muscle Contraction: A Symposium*, Academic, 1960. \$6.50.

Medical Physiology: Autonomic Nervous System

Ciba Foundation, *Adrenergic Mechanisms*, ed. for the British Pharmacological Society by John R. Vane; ed. for the Ciba Foundation by Gordon E. W. Wolstenholme, and Maeve O'Connor, Little, 1961. \$12.50.

Papers and discussions of the Symposium on Adrenergic Mechanisms, London, 1960, jointly sponsored by the Ciba Foundation and the Committee for Symposia on Drug Action of the British Pharmacological Society.

Cannon, Walter B., and Arturo Rosenblueth, *Autonomic Neuro-effector Systems*, Macmillan, 1937. o.p.

White, James C., et al., *Autonomic Nervous System: Anatomy, Physiology and Surgical Application*, 3d ed., Macmillan, 1952. o.p.

Medical Physiology: Pain

Lewis, Thomas, *Pain*, Macmillan, 1942. o.p.

Noordenbos, W., *Pain: Problems Pertaining to the Transmission of Nerve Impulses Which Give Rise to Pain: Preliminary Statement*, Am. Elsevier, 1959. \$8.50.

Wolff, Harold G., and Stewart Wolf, *Pain*, 2d ed., Thomas, 1958. \$4.25.

Medical Physiology: Endocrinology

Ciba Foundation, *Colloquia on Endocrinology*, ed. by Gordon E. W. Wolstenholme and Margaret P. Cameron, Little, 1952-. v. 1- . v. 1, *Steroid Hormones and Tumour Growth; Steroid Hormones and Enzymes*, 1952, o.p.; v. 2, *Steroid Metabolism and Estimation*, 1952, o.p.; v. 3, *Hormones, Psychology and Behaviour; Steroid Hormone Administration*, 1952, o.p.; v. 4, *Anterior Pituitary Secretion; Hormonal Influences in Water Metabolism*, 1952, o.p.; v. 5, *Bioassay of Anterior Pituitary; Adrenocortical Hormones*, 1953, o.p.; v. 6, *Hormonal Factors in Carbohydrate Metabolism*, 1954?, o.p.; v. 7, *Synthesis and Metabolism of Adrenocortical Steroids*, 1955?, o.p.; v. 8, *The Human Adrenal Cortex*, 1956?, o.p.; v. 9, *Internal Secretions of the Pancreas*, 1956, \$7.50; v. 10, *Regulation and Mode of Action of Thyroid Hormones*, 1957, \$9.00; v. 11, *Hormones in*

Blood, 1957, o.p.; v. 12, Hormones Production in Endocrine Tumours, 1958, \$9.00; v. 13, Human Pituitary Hormones, 1960, \$9.50; v. 14, Detection and Assay of Hormones by Immunochemical Means, in preparation 1962.

Hall, Peter F., Functions of the Endocrine Glands, Saunders, 1959. \$5.75.

Williams, Robert H., ed., Textbook of Endocrinology, 3d ed., Saunders, 1962. \$21.00.

Medical Physiology: Electrolytes

Brooks, Stewart M., Basic Facts of Body Water and Ions, Springer, 1960. \$2.75.

Davenport, Horace W., The ABC of Acid-Base Chemistry, 4th ed., University of Chicago, 1958. Paper, \$2.00.

Strauss, Maurice, Body Water in Man, Little, 1957. \$7.00.

Medical Physiology: Other Specialized Monographs

Babkin, Boris P., Secretory Mechanism of Digestive Glands, 2d ed., Hoeber, 1950. \$20.00.

Barcroft, Henry, and H. J. C. Swan, Sympathetic Control of Human Blood Vessels, Williams and Wilkins, 1953. o.p.

Bourne, Geoffrey H., The Structure and Function of Muscle, Academic, 1960, 3v. v. 1, Structure, \$14.00; v. 2, Biochemistry and Physiology, \$16.50; v. 3, Pharmacology and Disease, \$15.00.

Custer, Richard P., Atlas of the Blood and Bone Marrow, Saunders, 1949. o.p.

Hurley, Harry J., and Walter B. Shelley, Human Apocrine Sweat Gland in Health and Disease, Thomas, 1960. \$6.50.

Morehouse, Laurence E., and Augustus T. Miller, Physiology of Exercise, 3d ed., Mosby, 1959. \$4.75.

Reynolds, Samuel R. M., Physiology of the Uterus, 2d ed., Hoeber, 1949. o.p.

Wolf, Stewart G., and Harold G. Wolff, Human Gastric Function, 2d ed., Oxford, 1947. o.p.

Youmans, William B., Nervous and Neurohumoral Regulation of Intestinal Motility, Interscience, 1949. o.p.

Pathology: Textbooks

Sodeman, William A., ed., Pathologic Physiology, 3d ed., Saunders, 1961. \$15.00.

Pathology: Drug Addictions and Habituations

Larson, Paul S., et al., Tobacco: Experimental and Clinical Studies, A Comprehensive Account of the World Literature, Williams and Wilkins, 1961. \$20.00.

Maurer, David W., and Victor H. Vogel, Narcotics and Narcotic Addiction, 2d ed., Thomas, in preparation 1962.

Pittman, David J., Alcoholism, Thomas, 1959. \$3.75.

Roth, Grace M., Tobacco and the Cardiovascular System, Thomas, 1951. \$2.25.

Thompson, George N., ed., Alcoholism, Thomas, 1956. \$9.50.

Wikler, Abraham, Opiate Addiction: Psychological and Neurophysiological Aspects, Thomas, 1952. \$3.00.

Williams, Roger J., Alcoholism: The Nutritional Approach, University of Texas, 1959. \$2.50.

Pathology: Metabolic Disorders

There are monographs on individual diseases both in this section and in the section Therapeutics. Each book is placed according to its emphasis.

Allen, Edgar V., et al., Peripheral Vascular Diseases, 2d ed., Saunders, in preparation 1962.

Bland, John H., Chemical Recognition and Management of Disturbances of Body Fluids, 2d ed., Saunders, 1956. \$11.50.

Ciba Limited, Essential Hypertension, ed. by Klause D. Bock, and Paul T. Cottier, Springer, 1960.

Proceedings of the international symposium held at Berne, June 7-10, 1960, sponsored by Ciba. Chairman, F. C. Reubi.

Cook, Robert P., ed., Cholesterol: Chemistry, Biochemistry, and Pathology, Academic, 1958. \$15.00.

- Gamble, James L., *Chemical Anatomy, Physiology, and Pathology of Extracellular Fluid*, 6th ed., Harvard, 1954. Paper, \$2.50.
- Green, John R., and Harry F. Steelman, eds., *Epileptic Seizures*, Williams and Wilkins, 1956. \$5.00.
- Greenberg, David M., and Harold A. Harper, eds., *Enzymes in Health and Disease*, Thomas, 1960. \$14.50.
- Holland, William C., and Richard L. Klein, *Chemistry of Heart Failure*, Thomas, 1960. \$5.50.
- Kritchevsky, David, *Cholesterol*, Wiley, 1958. \$10.50.
- Livingston, William K., *Pain Mechanisms: A Physiologic Interpretation of Causalgia and its Related States*, Macmillan, 1943. o.p.
- Mazer, Charles, and S. L. Israel, *Diagnosis and Treatment of Menstrual Disorders and Sterility*, 4th ed., Hoeber, 1959. \$15.00.
- Osserman, Kermit E., *Myasthenia Gravis*, Grune, 1958. \$10.00.
- Pitt-Rivers, Rosalind, and Jamshed R. Tata, *Chemistry of Thyroid Diseases*, Thomas, 1960. \$4.50.
- Quick, Armand J., *Hemorrhagic Diseases*, 2d ed., Lea, 1957. \$9.50.
- Stanbury, John B., et al., eds., *Metabolic Basis of Inherited Disease*, McGraw, 1960. \$30.00.
- Thompson, Robert H. S., and E. J. King, eds., *Biochemical Disorders in Human Disease*, Academic, 1957. \$12.60.
- Tower, Donald B., *Neurochemistry of Epilepsy*, Thomas, 1960. \$9.00.

Therapeutics

General Works

Specialized Monographs

General Works

- Conn, Howard F., et al., *Current Therapy: Latest Approved Methods of Treatment for the Practicing Physician*, Saunders, 1949- . v. 1- . Annual. 1962, \$12.50.
- Merck Manual of Diagnosis and Therapy, 10th ed., Merck, 1961. \$7.50.
- Modell, Walter, ed., *Drugs of Choice 1962-63*, 3d ed., Mosby, 1962. \$14.50.

Specialized Monographs

- Alexander, Leo, et al., *Mutiple Sclerosis, Prognosis and Treatment*, Thomas, 1960. \$7.50.
- Allen, Joseph G., ed., *Physiology and Treatment of Peptic Ulcer*, University of Chicago, 1959. \$7.50.
- Artz, Curtis P., and Eric Reiss, *Treatment of Burns*, Saunders, 1957. \$7.50.
- Forster, Francis M., ed., *Evaluation of Drug Therapy*, University of Wisconsin, 1961. \$4.00.

Symposium on Evaluation of Drug Therapy in Neurologic and Sensory Diseases held at the University of Wisconsin, 1960.

Hollaender, Alexander, *Radiation Protection and Recovery*, Pergamon, 1960. \$10.00.

Houston Neurological Society, *Pathogenesis and Treatment of Parkinsonism*, ed. by William S. Fields, Thomas, 1958. \$10.75.

Sixth annual scientific meeting of the Houston Neurological Society, held at Texas Medical Center, Houston. "The fourth in a series of published symposia of the Houston Neurological Society."

Mitchell, Roger S., and J. C. Bell, *Modern Chemotherapy of Tuberculosis*, Medical Encyclopedia, 1958. \$4.00.

Drug Monographs

Analgesics
 Anesthetics
 Antibiotics
 Autonomic Drugs
 Cardiac Glycosides
 Diuretics
 Hypotensive Drugs
 Narcotics
 Radioisotopes
 Other Monographs

Analgesics

Gross, Erwin G., and Milton J. Schiffrin, *Clinical Analgetics*, Thomas, 1955. \$3.00.

Jannsen, Paul, *Synthetic Analgesics*, pt. 1. *Diphenylpropylamines*, Pergamon, 1960. \$7.50.

Anesthetics

Adriani, John, *Pharmacology of Anesthetic Drugs*, 4th ed., Thomas, 1960. \$11.00.

Beecher, Henry K., *Physiology of Anesthesia*, Oxford, 1938. o.p.

Harris, Thomas A. B., *Mode of Action of Anesthetics*, Williams and Wilkins, 1951. o.p.

Antibiotics

Fleming, Alexander, *Penicillin, Its Practical Application*, Blakiston, 1946. o.p.

Hirsh, Harold L., and Lawrence E. Putnam, *Penicillin*, *Medical Encyclopedia*, 1958. \$4.00.

Weinstein, Louis, and N. J. Ehrenkranz, *Streptomycin and Dihydrostreptomycin*, *Medical Encyclopedia*, 1958. \$4.00.

Welch, Henry, and Charles N. Lewis, *Antibiotic Therapy*, Arundel, 1951. o.p.

Woodward, Theodore E., *Chloromycetin*, *Medical Encyclopedia*, 1958. \$4.00.

Autonomic Drugs

Association for Research in Nervous and Mental Disease, *Effect of Pharmacologic Agents on the Nervous System*, ed. by Francis J. Braceland, Williams and Wilkins, 1959. \$13.50.

Proceedings of the association, December 13-14, 1957.

Bovet, Daniele, and Filomena Bovet-Nitti, *Structure et Activité Pharmacodynamique des Médicaments du Système Nerveux Végétatif; Adréraline, Acétylcholine, Histamine et Leurs Antagonistes*, Karger, 1948. o.p.

Leake, Chauncey D., *Amphetamines: Their Actions and Uses*, Thomas, 1958. o.p.

von Euler, Ulf S., *Noradrenaline: Chemistry, Physiology, Pharmacology, and Clinical Aspects*, Thomas, 1956. o.p.

Cardiac Glycosides

Dimond, Edmunds G., ed., *Digitalis*, Thomas, 1957. \$7.00.

Wright, Sydney E., *Metabolism of Cardiac Glycosides: A Review of the Absorption, Metabolism and Excretion of Clinically Important Cardiac Glycosides*, Thomas, 1960. \$4.75.

Diuretics

Ciba Limited, *Diurese und Diuretica*, ed. by E. Buchborn and K. D. Bock, Springer, 1959. o.p.

An International Symposium on Diurase and Diuretics, held at Herrenschiemsee, June 17-20, 1959. Chairman: H. Schwiegk. Articles in German and English with summaries in German, English, and French.

Handley, Carroll A., *Pharmacology and Clinical Use of Diuretics*, Thomas, 1959. \$6.00.

Hypotensive Drugs

Harington, Michael, ed., *Hypotensive Drugs*, Pergamon, 1957. \$8.00.

Proceedings of the Symposium on Hypotensive Drugs and the Control of Vascular Tone in Hypertension held in London, April 5-6, 1956, at the Wellcome Foundation.

Woodson, Robert, et al., *Rauwolfia: Botany, Pharmacognosy, Chemistry, and Pharmacology*, Little, 1957. \$5.50.

Narcotics

Krueger, Hugo M., et al., *Pharmacology of the Opium Alkaloids*, U.S. Public Health Service, 1941-1943, 2v. Public Health Reports, Supplement No. 165.

"Prepared by the authors and the Committee on Drug Addiction of the National Research Council."—Preface.

Reynolds, Albert K., and Lowell O. Randall, *Morphine and Allied Drugs*, University of Toronto, 1957. \$10.00.

Radioisotopes

Hahn, Paul F., *Therapeutic Use of Artificial Radioisotopes*, Wiley, 1956. \$11.50.

Overman, Ralph T., and Herbert M. Clark, *Radioisotope Techniques*, McGraw, 1960. \$10.50.

Quimby, Edith, et al., *Radioactive Isotopes in Medicine and Biology: Basic Physics and Instrumentation*, 2d ed., Lea, in preparation 1962.

U.S. Atomic Energy Commission, *Radioisotopes in Science and Industry*, Special Report, GPO, 1960. \$1.25.

Other Monographs

Bovet, Daniele, et al., *Curare and Curare-like Agents*, Am. Elsevier, 1959. \$15.75.

Proceedings of the International Symposium on Curare and Curare-like Agents held at Rio de Janeiro, 1957.

Broom, Walter A., ed., et al., *Mechanism of Action of Insulin*, Davis, 1960. \$7.50.

A symposium organized by the British Insulin Manufacturers.

Feinberg, Samuel M., et al., *Antihistamines, Their Clinical Application*, Year Book, 1950. o.p.

Finch, William E., *Disinfectants*, Chapman and Hall, 1958. 30s.

Gold, Harry, *Quinidine in Disorders of the Heart*, Hoeber, 1950. o.p.

Harris, Leslie J., *Vitamins in Theory and Practice*, 4th ed., Cambridge, 1955. o.p.

Martin, Gustav J., *Clinical Enzymology*, Little, 1958. o.p.

Martin, Gustav J., *Ion Exchange and Adsorption Agents in Medicine*, Little, 1955. o.p.

Meduna, Ladislav J., *Carbon Dioxide Therapy*, 2d ed., Thomas, 1958. \$14.50.

New York Academy of Science, *Biochemistry and Pharmacology of Compounds Derived from Marine Organisms*, ed. by Ross F. Nigrelli, et al., the academy, 1960. \$5.00

Annals, v. 90, art. 3.

Pincus, Gregory, and E. P. Vollmer, eds., *Biological Activities of Steroids in Relation to Cancer*, Academic, 1960. \$15.00.

Proceedings of the symposium held at Vergennes, Vt., 1959.

Pitt-Rivers, Rosalind, and Jamshed R. Tata, *Thyroid Hormones*, Pergamon, 1959. \$7.50.

Plant Phenolics Group, *Pharmacology of Plant Phenolics*, ed. by James W. Fairbairn, Academic, 1959. \$6.00.

Proceedings of a symposium held at Oxford, 1958.

Smith, Ernest L., *Vitamin B₁₂*, Wiley, 1960. \$3.00

Wiselogle, Frederick Y., ed., *Survey of Antimalarial Drugs, 1941-1945*, Edwards, 1946. 2v. in 3. \$30.00.

*Psychopharmacology***Anatomic and Physiologic Foundations**
Psychopharmacologic Monographs*Anatomic and Physiologic Foundations*

U.S. National Institutes of Health, Division of Research Services, Scientific Reports Branch, Central Nervous System and Human Behavior, Russian Scientific Translation Program, National Institutes of Health, 1959.

"Translations from the Russian medical literature collected for the participants of the Second Macy Conference on the Central Nervous System and Human Behavior, held under the joint sponsorship of the Josiah Macy, Jr., Foundation and the National Science Foundation, Princeton, N.J., February 22-23, 1959."-t. p.

Featherstone, Robert M., and Alexander Simon, eds., *A Pharmacologic Approach to the Study of the Mind*, Thomas, 1959. \$10.75.

Fields, William S., ed., *Brain Mechanisms and Drug Action*, Thomas, 1957. \$4.25.

Grenell, Robert G., and Lorin J. Mullins, eds., *Molecular Structure and Functional Activity of Nerve Cells*, American Institute of Biological Sciences, 1956. \$4.75 (\$3.75 to AIBS members).

A symposium organized by the Office of Naval Research held in Washington, D.C., June 3-4, 1955.

Harlow, Harry F., and Clinton N. Woolsey, eds., *Biological and Biochemical Bases of Behavior*, University of Wisconsin, 1958. \$8.00.

Hoffer, Abram, and Humphrey Osmond, *Chemical Basis of Clinical Psychiatry*, Thomas, 1960. \$8.50.

Lassek, Arthur M., *The Human Brain: From Primitive to Modern*, Thomas, 1957. \$4.75.

Mellwain, Henry, *Biochemistry and the Central Nervous System*, 2d ed., Little, 1959. \$10.00.

Magoun, Horace W., *The Waking Brain: The Role of the Reticular System in Wakefulness and Behavior*, 2d ed., Little, 1959. \$10.00.

Minz, Bruno, *Role of Humoral Agents in Nervous Activity*, Thomas, 1955. \$7.75.

Quastel, Juda H., and David M. J. Quastel, *Chemistry of Brain Metabolism in Health and Disease*, Thomas, 1961. \$6.50.

Richter, Derek, ed., *Metabolism of the Nervous System*, Pergamon, 1957. \$16.00.

Proceedings of the Second International Neurochemical Symposium held at Aarhus, 1956.

Simon, Alexander, et al., *Physiology of Emotions*, Thomas, 1961. \$8.50.

Strong, Oliver S., and Adolph Elwyn, *Human Neuroanatomy*, 4th ed., by Raymond C. Truex, Williams and Wilkins, 1959. \$10.00.

Wechsler, Israel S., *Clinical Neurology*, 8th ed., Saunders, 1958. \$11.00.

Wyburn, G. M., *The Nervous System: An Outline of the Human Nervous System and Sense Organs*, Academic, 1960. \$5.00.

Psychopharmacologic Monographs

American Psychiatric Association, *Lysergic Acid Diethylamide and Mescaline in Experimental Psychiatry*, ed. by Louis Cholden, Grune 1956. \$3.25.

Proceedings of the Round Table on Lysergic Acid Diethylamide and Mescaline in Experimental Psychiatry held at the annual meeting of the association, May 12, 1955, at Atlantic City.

Brill, Henry, *Trifluoperazine*, Lea, 1958. \$3.50.

Collegium Internationale Neuropsychopharmacologicum, *Neuropsychopharmacology*, Am. Elsevier, 1959- . v. 1- . v. 1, 1st meeting, Rome, 1959, ed. by P. B. Bradley et al., \$27.00; v. 2, 2d meeting, Basle, 1960, ed. by E. Rothlin, \$24.00.

Conference on d-Lysergic Acid and Diethylamide, *Use of LSD in Psychotherapy*, ed. by Harold A. Abramson, Josiah Macy, Jr., Foundation, 1960. \$5.00.

Transactions of the conference held April 22-24, 1959, at Princeton, N.J.

Flach, Frederic F., and Peter F. Regan, *Chemotherapy in Emotional Disorders*, McGraw, 1960. \$10.00.

- Himwich, Harold E., ed., *Tranquilizing Drugs*, American Association for the Advancement of Science, 1957. \$5.00.
- Garattini, S., and V. Ghetti, eds., *Psychotropic Drugs*, Am. Elsevier, 1958. \$19.50.
- Proceedings of the International Symposium on Psychotropic Drugs held in Milan, 1957.
- Kline, Nathan S., ed., *Psychopharmacology*, American Association for the Advancement of Science, 1956. \$3.50.
- Kline, Nathan S., *Psychopharmacology Frontiers*, Little, 1959. \$10.00.
- Lewis, Graham P., ed., *5-Hydroxytryptamine*, Pergamon, 1958. \$9.50.
- Proceedings of a symposium held April 1-2, 1957, in London.
- McIlwain, Henry, *Chemotherapy and the Central Nervous System*, Little, 1957. \$10.00.
- Pennes, Harry H., ed., *Psychopharmacology*, Hoeber, 1958. o.p.
- Roberts, Eugene, ed., *Inhibition in the Nervous System and Gamma-aminobutyric Acid*, Pergamon, 1960. \$15.00.
- Sarwer-Foner, Gerald J., ed., *Dynamics of Psychiatric Drug Therapy*, Thomas, 1960. \$16.00.
- Conference on Psychodynamic, Psychoanalytic, and Sociological Aspects of the Neuroleptic Drugs in Psychiatry, Montreal, 1959.
- Uhr, Leonard, and James C. Miller, *Drugs and Behavior*, Wiley, 1960. \$10.75.
- Welsh, Ashton L., *Psychotherapeutic Drugs*, Thomas, 1958. \$4.75.
- Wikler, Abraham, *Relation of Psychiatry to Pharmacology*, Williams and Wilkins, 1957. Paper, \$4.00.

Toxicology

Special attention is called to the frequent publications on toxicology by the Technical Development Laboratories of the Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare. These are sent free to their mailing list. Address: P.O. Box 769, Savannah, Georgia.

- Albert, Adrien, *Selective Toxicity*, 2d ed., Wiley, 1960. \$5.50.
- Bensley, Edward H., and G. E. Joron, *Handbook of Treatment of Acute Poisoning*, 2d ed., Williams and Wilkins, 1958. \$4.00.
- Brooks, Vincent J., and Morris B. Jacobs, *Poisons: Properties, Chemical Identification, Symptoms, and Emergency Treatment*, 2d ed., Van Nostrand, 1958. \$7.50.
- Dubois, Kenneth P., and E. M. K. Geiling, *Textbook of Toxicology*, Oxford, 1959. \$6.50.
- Fairhall, Lawrence T., *Industrial Toxicology*, 2d ed., Williams and Wilkins, 1957. \$10.00.
- Gerarde, Horace W., *Toxicology and Biochemistry of Aromatic Hydrocarbons*, Am. Elsevier, 1961. \$6.00.
- Gleason, Marion N., et al., *Clinical Toxicology of Commercial Products*, 2d ed., Williams and Wilkins, in preparation 1962.
- O'Brien, Richard D., *Toxic Phosphorus Esters: Chemistry, Metabolism, and Biological Effects*, Academic, 1960. \$14.50.
- Polson, Cyril J., and R. N. Tattersall, *Clinical Toxicology*, Lippincott, 1961. \$10.00.
- Sax, Newton I., *Dangerous Properties of Industrial Products*, Reinhold, 1957. \$22.50.
- Spector, William S., *Handbook of Toxicology*, published for the National Academy of Sciences, National Research Council, by Saunders, 1956- . v. 1- . v. 1, 1956, \$7.00; v. 2, 1957, \$6.00; v. 3, 1959, \$14.00; v. 4, 1959, \$4.00; v. 5, 1959, \$5.50. Paper.
- Stewart, Corbet P., and A. Stolman, eds., *Toxicology: Mechanisms and Analytical Methods*, Academic, 1960-1961, 2 v. v. 1, 1960, \$22.00; v. 2, 1961, \$25.00.
- Von Oettinger, Wolfgang, *Poisoning*, 2d ed., Saunders, 1958. \$12.50.

*Laboratory Methods***Laboratory Manuals**

Experimental Techniques and Quantitative Measurement
Animal Care and Handling

Laboratory Manuals

Holck, Harold G. O., et al., *Laboratory Guide in Pharmacology*, Burgess, 1959. \$3.50.

Koppányi, Theodore, and Alexander G. Karczmar, *Experimental Pharmacodynamics*, 2d ed., Burgess, 1958. \$5.50.

Experimental Techniques and Quantitative Measurement

Beecher, Henry K. U., *Measurement of Subjective Responses: Quantitative Effects of Drugs*, Oxford, 1959. \$12.75.

Biometric Society, *Quantitative Methods in Pharmacology*, ed. by H. De Jonge, Interscience, 1961. \$13.25.

Proceedings of the Symposium on Quantitative Methods in Pharmacology held at the University of Leyden in 1960.

Bliss, Chester I., *Statistics of Bioassay, with Special Reference to the Vitamins*, Academic, 1952. \$5.50.

"Reprinted with additions from *Vitamin Methods*, v. 2." (Paul Gyorgi, Academic, 1951)

Bliss, Chester I., and D. W. Calhoun, *An Outline of Biometry*, Yale Co-op Corp., 1954. o.p.

Burn, Joshua H., et al., *Biological Standardization*, 2d ed., Oxford, 1950. \$8.50.

Emmens, Clifford W., *Principles of Biological Assay*,² Chapman, 1948.

Finney, David J., *Statistical Methods in Biological Assay*, Hafner, 1952. \$12.50.

Jackson, Dennis E., *Experimental Pharmacology and Materia Medica*, 2d ed., Mosby, 1939. o.p.

Laurence, Desmond R., ed., *Quantitative Methods in Human Pharmacology and Therapeutics*, Pergamon, 1959. \$7.50.

Symposium on Quantitative Methods in Human Pharmacology and Therapeutics held in 1958 in London.

Biological Council Co-ordinating Committee for Symposia on Drug Action, v. 3. Markowitz, Jacob, et al., *Experimental Surgery, Including Surgical Physiology*, 4th ed., Williams and Wilkins, 1959. \$12.50.

Methods in Medical Research, Year Book, 1948- . v. 1- . 1961. \$10.75.

Paul, John R., *Cell and Tissue Culture*, 2d ed., Williams and Wilkins, 1960. \$7.50.

Ther, Leopold, *Pharmakologische Methoden zur Affindung von Arzneimitteln und Giften und Analyse ihrer Wirkungeneise*, Wissenschaftliche, 1949. o.p.

Umbreit, Wayne W., et al., *Manometric Techniques: A Manual Describing Methods Applicable to the Study of Tissue Metabolism*, 3d ed., Burgess, 1959. \$6.50.

Animal Care and Handling

Farris, Edmond J., ed., *Care and Breeding of Laboratory Animals*, Wiley, 1950. \$14.00.

Roscoe B. Jackson Memorial Laboratory Staff, *Biology of the Laboratory Mouse*, ed. by George D. Snell, et al., Dover, 1956. \$6.00.

Reprint of the 1941 edition?

Russell, William M. S., and Rex L. Burch, *Principles of Humane Experimental Technique*, Thomas, 1961. \$6.50.

Worden, Alastair N., and W. Land-Petter, eds., *UFAW Handbook on the Care and Management of Laboratory Animals*, 2d ed., Universities Federation for Animal Welfare, 1957. From Livingstone, \$9.80.

APPENDIX C*

WORLD LIST OF PHARMACY PERIODICALS

The following list was initiated as a project of the Medical Library Association Pharmacy Libraries Group by Mrs. Theodora Andrews, Pharmacy Librarian, Purdue University. It is based on a list originally collected for a meeting of the Commission on Pharmaceutical Abstracts of the International Pharmaceutical Federation by Winifred Sewell, Deputy Chief, Bibliographic Services Division, National Library of Medicine.

The definition of periodicals is broad and includes serial publications issued as frequently as once a year. The scope is limited to periodicals directly concerned with drugs and pharmacy and does not include those in other fields which contain drug information. Of the 911 journals listed, approximately 650 appear to be published currently. A tabulation of those containing certain types of information yields the following figures: abstracts or reviews, 28; business or professional, 148; documentation, 2; historical, 16; lists of new drugs, 29; news, 166; official or legal, 109; scientific, 339.

The present list is reproduced from galley proofs for the February 1963 American Journal of Hospital Pharmacy.

PREFACE TO WORLD LIST

Publication of the World List of Pharmacy Periodicals brings to pharmacists and librarians throughout the world a means of checking the total literature available. Culmination of this listing represents long hours of work first initiated in 1957 by Miss Winifred Sewell for the Commission on Pharmaceutical Abstracts of the Fédération Internationale Pharmaceutique. When work on this revision began, it was hoped that rather complete examination and verification of each title could be accomplished through cooperation with other librarians. This hope has been fulfilled in part by working with members of the pharmaceutical sections of the Special Librarians Association and the Medical Library Association as well as the Midwest Interlibrary Center Staff, the National Library of Medicine Technical Services Staff, the Librarian at the Pharmaceutical Society of Great Britain, and many others to whom we are most grateful. However, it was found that some titles were not available in the United States.

To aid in this task of making the World List "complete," officials in pharmaceutical organizations, editors of pharmacy periodicals, and librarians are asked to check the list for those journals published in their respective countries—for both completeness and verification of information included. Additions and comments may be directed to Mrs. Theodora Andrews at the address given below. Publication of a supplement will be forthcoming when indicated.

In addition to checking library holdings, the periodical titles were originally taken from a number of lists. World Medical Periodicals, the List of Periodicals Abstracted by Chemical Abstracts, and the National Library of Medicine's Biomedical Serials have been particularly useful.

Since the intent is to list all pharmacy periodicals, a great many ephemeral titles have been included. All currently published serials that are issued as frequently as annually have been included, except annual reports and annual issues of drug information sources. Pharmacy library acquisition lists have been excluded also. It will be noted that a great number of titles have been included that are no longer published or which are now published under changed titles. This was felt necessary as periodicals are constantly in a state of change.

The subject matter of the journals selected for the list included formulations, analysis, manufacturing pharmacy, retail pharmacy, hospital pharmacy, pharmacology, pharmacognosy, and some related materials in the soap, perfumery and

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cosmetics fields. Clinical journals and journals devoted exclusively to chemistry have been excluded even if they occasionally publish pharmacology papers.

The entries have been listed as in the following order: journal title; address of publisher or editor; frequency; type; and sources in which the journal in question is indexed or abstracted when this information is known.

THEODORA ANDREWS, Pharmacy Librarian

Purdue University
Lafayette, Indiana
December 1962

KEY TO ABBREVIATIONS

Abbreviations used in describing frequency of issue are as follows:

A—annually	M—monthly
BM—bimonthly	Q—quarterly
ca.—approximately	SA—semi-annually
F—fortnightly	SM—semi-monthly
4 x/yr., etc.—4 times a year	W—weekly
I—irregularly	

Abbreviations describing the type of periodical are as follows:

A—abstracts or reviews	L—lists of new drugs
B—business or professional	N—news
D—documentation	O—official or legal
H—historical	S—scientific

Abbreviations for sources in which the journals are indexed or abstracted are as follows:

AWM—Abstract of World Medicine	CLML—Current List of Medical Literature
BA—Biological Abstracts	EM—Excerpta Medica
BIP—Bulletin de l'Institut Pasteur	IABS—International Abstracts of Biological Sciences
BPI—Business Periodicals Index	IM—Index Medicus
CA—Chemical Abstracts	NA—Nutrition Abstracts
CIHL—Cumulative Index of Hospital Literature	

Items marked with an asterisk () have not been verified.*

WORLD LIST of pharmacy periodicals

compiled by Theodora Andrews from a preliminary list by Winifred Sewell

A

1

ADEF

Asociación de Empleados de Farmacia, Buenos Aires, Argentina
Probably discontinued

2

A.I.H.P. Notes

See Pharmacy in History

3

The APhA Newsletter

American Pharmaceutical Association, 2215 Constitution Ave., N. W.,
Washington 7, D. C., U.S.A.

BW; N

4

APXNB*

(Archives of Pharmacy Beograd)

Beograd, Yugoslavia

—; S

5

Acta Belgica de Arte Medicinali et Pharmaceutica Militari

145, Avenue de la Couronne, Bruxelles 5, Belgium

Q; S; IM, CA

6

Acta Brevia Neerlandica de Physiologia, Pharmacologia, Microbiologia, e.a.

Incorporated in Acta Physiologica et Pharmacologica Neerlandica
which See

7

Acta Facultatis Pharmaceuticae Brunensis et Bratislavenis

Brennska Universitata, Fakulta Farmaceuticka v Brne, ve Statim
Pedagogickem Nakladatelstvi, N. P., Praha, Czechoslovakia

A; S; CA

8

Acta Pharmaceutica Hungarica

Magyar Gyógyszerészstudományi Társaság, Ulloi-utca 26, Budapest
8, Hungary

BM; S; CA, BA

9

Acta Pharmaceutica Internationalia

Ejnar Munksgaard, Copenhagen, Denmark

Ceased publication

THEODORA ANDREWS, M.S., is Pharmacy Librarian, Purdue University School of Pharmacy, Lafayette, Indiana. WINIFRED SEWELL, M.S., formerly Librarian at the Squibb Institute for Medical Research, New Brunswick, N.J., is now Deputy Chief, Bibliographic Service Division, National Library of Medicine, Bethesda, Maryland.

10

Acta Pharmaceutica Jugoslavica

Masarykova 2/II, Zagreb 1, Yugoslavia

4x/yr; S; CA, BA

11

Acta Pharmaceutica Sinica

See Yao Hsüeh Hsüeh-Pao

12

Acta Pharmaciae Historica

Académie Internationale d'Histoire de la Pharmacie, s'Gravenhage,
Netherlands

Probably discontinued

13

Acta Pharmacologica et Toxicologica

Ejnar Munksgaard, Njregade 6, Copenhagen, Denmark

I; S; BA, CA, EM, CLML, IM, IABS

14

Acta Physiologica et Pharmacologica Neerlandica

North-Holland Publishing Co., P.O. Box 103, Amsterdam, Nether-
lands

I; S; CA, CLML, IM, BA, IABS, BIP, NA

15

Acta Phytotherapeutica

E.F. Steinmetz, Keizersgracht 347, Amsterdam-C, Netherlands

10x/yr; S; CA, BA

16

Acta Poloniae Pharmaceutica

Orzeszkowej 7, Krakow 6, Poland

BM; S; CA, IABS

17

Action Pharmaceutique*

97, Boulevard Gambetta, Cahors, France

BM

18

Actualidades en Materia Medica

Sandoz, A.-G., Basel, Switzerland

Ceased publication

19

Actualidades Wyeth

Wyeth International, Ltd., P.O. Box 8299, Philadelphia 1, Pa., U.S.A.

Ceased publication

20

Actualités Pharmacologiques

Masson et Cie., 120, Boulevard Saint-Germain, Paris 6e, France

A; S; A; CA, CLML, IM, BA, BIP

21

Advances in Clinical Chemistry

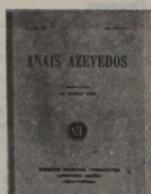
Academic Press, 111 Fifth Ave., New York 3, N.Y., U.S.A.

A; S; CLML, CA, IM, BA

- 22
Advances in Pharmacology
 Academic Press Inc., 111 Fifth Avenue, New York 3, N.Y., U.S.A.
 A; S
- 23
Aerztliche Laboratorium
 Laborarzt-Verlag G.m.b.H., Domstr. 21-3, Würzburg, Germany
 M; S
- 24
Agressologie. Revue Internationale de Physiobiologie et de Pharmacologie Appliquees aux effets de l'Agression
 S.P.E.I., 14 rue Drouot, Paris 9, France
 Q; S; BA
- 25
Aktuelle Arzneitherapie
 Bad Wörishofen, Germany
 Ceased publication
- 26
Alcaloides
 Laboratoires Houdé, 9, rue Dieu, Paris, France
 4x/yr. Ceased publication
- 27
Alchemist
 Monthly Pharmaceutical Digest
 See Pharmacy Digest
- 28
Alchimist
 N.V. Sluys Boechout, Boechout, Belgium
 M; S, B
- 29
Allegheny County Pharmacist
 Allegheny County Pharm. Assoc., 731-732 Jenkins Arcade Bldg., Pittsburgh 22, Pa., U.S.A.
 M; N
- 30
American Association of Colleges of Pharmacy Newsletter
 1507 M St., N.W., Washington 5, D.C., U.S.A.
 I; N
- 31
American Association of Colleges of Pharmacy. Proceedings
 Ceased publication
- 32
American Association of Colleges of Pharmacy, Teachers' Seminars
 Charles W. Bliven, Business Manager, American Association of Colleges of Pharmacy, 1507 M St., N.W., Washington 5, D.C., U.S.A.
 A; B
- 33
American Druggist
 250 West 55th Street, New York 19, N.Y., U.S.A.
 F; B
- 34
American Institute of the History of Pharmacy Notes
 See Pharmacy in History
- 35
American Journal of Hospital Pharmacy
 American Society of Hospital Pharmacists, 2215 Constitution Ave., N.W., Washington 7, D.C., U.S.A.
 M; S, B; CA, CIHL (formerly Bulletin of the American Society of Hospital Pharmacists)
- 36
American Journal of Pharmaceutical Education
 Charles W. Bliven, Business Manager, American Association of Colleges of Pharmacy, 1507 M St., N.W., Washington 5, D.C., U.S.A.
 Q; B; CA, BA, CIHL
- 37
American Journal of Pharmacy and the Sciences Supporting Public Health
 Philadelphia College of Pharmacy & Science, 43rd St., Kingessing & Woodland Aves., Phila. 4, Pa., U.S.A.
 M; S; BA, CA, CLML, AWM, IM
- 38
American Perfumer and Aromatics
 Moore Publishing Co., 48 West 38th St., New York 18, N.Y., U.S.A.
 M; S; CA
- 39
American Professional Pharmacist
 1447 Northern Boulevard, Manhasset, N.Y., U.S.A.
 M; S, B; CA, BA, CIHL
- 40
Ampul
 Student publication
 Ohio Northern University College of Pharmacy, Ada, Ohio, U.S.A.
 4/yr; N
- 41
Anais da Academia Nacional de Farmácia
 Rua dos Andradas 96, 10° and., Rio de Janeiro, Brazil
 M
- 42
Anais Azevedos
 Sociedade Industrial Farmacêutica, Trav. da Espera 3, Lisboa, Portugal.
 5x/yr; S, N; CA
- 43
Anais da Faculdade de Farmácia e Odontologia do Estado do Rio de Janeiro
 Rua 15 de Novembro 78, Niterói, Brazil
 I; S
- 44
Anais da Faculdade de Farmácia e Odontologia da Universidade de São Paulo
 Rua Tres Rios 363, C.P. 8216, San Paulo, Brazil
 A; S; CA, BA, BIP
- 45
Anais de Faculdade de Farmácia, Universidade de Porto
 Rua Anibal Cunha, Porto, Portugal
 A; S; CA, BA
- 46
Anais da Faculdade Nacional de Farmácia
 Avenida Pasteur 458, Rio de Janeiro, Brazil
 I; S
- 47
Anais da Faculdade de Odontologia e Farmácia da Universidade de Minas Gerais
 Praça da Liberdade, s/n, Belo Horizonte, Minas Gerais, Brazil
 ca. A; S; CA
- 48
Anais de Farmácia e Química de São Paulo
 Avenida Brigadeiro Luis Antonio 393, 7 andar, San Paulo, Brazil
 BM S; CA, BA

ABBREVIATIONS - frequency of issue: A—annually; BM—bimonthly; ca.—approximately; F—fortnightly; 4x/yr., etc.—4 times a year; I—irregularly; M—monthly; Q—quarterly; SA—semi-annually; SM—semi-monthly; W—weekly
 type of periodical: A—abstracts or reviews; B—business or professional; D—documentation; H—historical; L—lists of new drugs; N—news; O—official or legal; S—scientific
 where indexed or abstracted: AWM—Abstracts of World Medicine; BA—Biological Abstracts; BIP—Bulletin de l'Institut Pasteur; BPI—Business Periodicals Index; CA—Chemical Abstracts; CIHL—Cumulative Index of Hospital Literature; CLML—Current List of Medical Literature; EM—Excerpta Medica; IABS—International Abstracts of Biological Sciences; IM—Index Medicus; NA—Nutrition Abstracts
 items marked with an asterisk (*) have not been verified.

- 49
Anales de la Asociación de Química y Farmacia del Uruguay
 Avenida Agraciada 1464, Piso 14, Montevideo, Uruguay
 ca. A; S; CA; Probably ceased publication
- 50
Anales de Bromatología
 Edificio Facultad de Farmacia, Ciudad Universitaria, Madrid, Spain
 Q; S; CA
- 51
Anales de la Facultad de Farmacia y Bioquímica
 Universidad Nacional Mayor de San Marcos, Apartado 1760,
 Lima, Peru
 A; S; CA, BA
- 52
Anales de la Facultad de Química y Farmacia
 Universidad de Chile
 Editorial Universitaria, S.A., Ricardo Santa Cruz 747, Santiago,
 Chile
 A; S; BA
- 53
Anales de la Facultad de Química y Farmacia
 Universidad de la Republica Oriental del Uruguay, Avenida
 General Flores 2124, Montevideo, Uruguay
 A; S; CA
- 54
Anales de Farmacia y Bioquímica
 Colegio Nacional de Farmaceuticos y Quimicos, Bogota, Colombia
 BM; Ceased publication
- 55
Anales de Farmacia y Bioquímica
 Paraguay 2155, Buenos Aires, Argentina
 Q; S; CA, BA, BIP
- 56
Anales de Farmacia Hospitalaria
 Servicios Farmacéuticos de la Excelentísima Diputación Provincial
 de Madrid, Miguel Angel 25, Madrid, Spain
 I; S; CA, BA
- 57
Anales del Instituto de Farmacología Española
 Instituto de Farmacología Española, Madrid, Spain
 A; S; CA, BA
- 58
Anales de la Real Academia de Farmacia
 Calle de Campoamor 18, Madrid, Spain
 M; S; CA, AWM, CLML, BIP, IM, BA
- 59
Annales d'Hygiène et de Médecine Coloniales
 Title changed to *Annales de Médecine et de Pharmacie Coloniales*
 which *See*
- 60
Annales de Médecine et de Pharmacie Coloniales
 Title changed to *Médecine Tropicale* which *See*
- 61
Annales Pharmaceutiques Belges
 11, rue Archimède, Bruxelles, Belgium
 SM; N; CA
- 62
Annales Pharmaceutiques Françaises
 Masson et Cie, 120 Boulevard Saint-Germain, Paris 6e, France
 10x/yr; S; CA, AWM, BA, BIP, EM, NA, CLML, IM
- 63
Annali di Chimica
 Viale Liegi 48, Roma, Italy
 M; S; CA, BA
- 64
Annali della Università di Ferrara, Sezione II, Farmacologia e Terapia
 Ferrara, Italy
 ca. A; S; CA, BA
- 65
Annatsitii o Novykh Lekarstvennykh Sredstvakh
 Ministerstvo Zdravookhraneniia, Moskva, U.S.S.R.*
- 66
Annual Review of Pharmacology
 Annual Reviews, Inc., 231 Grant Ave., Palo Alto, Calif., U.S.A.
 A; S; BA
- 67
Antibiotic Medicine and Clinical Therapy
 MD Publications Inc., 30 East 60th St., New York 22, N.Y., U.S.A.
 M; S; IM, BA, CA, CLML, NA; Ceased publication, 1961
- 68
Antibiotica et Chemotherapia
 S. Karger, Arnold Böcklinstrasse 25, Basel 11, Switzerland
 A; S; CLML, CA, IM, BA, IABS, BIP
- 69
Antibiotics
 Antibiotic Research Assoc., Kyoto, Japan
 Publication suspended
- 70
Antibiotics and Chemotherapy
 Merged with *Clinical Medicine*, January, 1963.
- 71
Antibiotics Annual
 Name changed to *Antimicrobial Agents and Chemotherapy*
- 72
Antibiotiki
 Gosudarstvennoe Izdatel'stvo Meditsinskoi Literatury, Moskva,
 U.S.S.R.
 BM; S; CA, CLML, IM, BA, BIP, NA; (Has English summaries)
- 73
Antibiotiques. Bulletin Bibliographique Mensuel
 Société des Antibiotiques de France, 67 Boulevard Haussmann,
 Paris 8e, France
 M; A
- 74
Anuario da Faculdade de Farmácia e Odontologia de Natal
 Praça Thomaz de Araujo, Rio Grande do Norte, Brazil
 Probably discontinued





75
Apothecary
 Apothecary Publishing Co., 376 Bolyston Street, Boston 16, Mass., U.S.A.
 M; B

76
Apothecary
 School of Pharmacy, American University of Beirut, Beirut, Lebanon
 A; S,B,N; CA

77
Apotheke
 Apotheken-Verlag, Verunda, Ründeroth, Germany
 M; Ceased publication

78
Apothekenhelfer
 Supplement to Deutsche Apotheker-Zeitung, which See

79
Apotheken-Werbung
 Supplement to Pharmazeutische Zeitung, which See

80
Apotheker-Dienst Roche
 Deutsche Hoffmann-La Roche, A.G., Grenzach, Germany
 Q;

81
Apothekersblad
 Flemish ed. of Annales Pharmaceutiques Belges, which See

82
Apotheker-Zeitung
 Combined with Süddeutsche Apotheker-Zeitung, then Deutsche Apotheker-Zeitung, which See

83
Aptechnoe delo
 Medgiz, Petrovka 12, Moskva, U.S.S.R.
 BM; S; CA, BA; (Table of Contents in English)

84
Archeia tes Farmakautikes
 Mrs. Spellan Papadaki, Nikis 24, Athens, Greece
 I; B

85
Archiv für Experimentelle Pathologie und Pharmacologie (Naunyn-Schmiedebergs)
 Springer-Verlag, Reichpietschufer 20, Berlin W 35, Germany
 I; S; CA, CLML, AWM, BA, EM, NA, AIBS, BIP

86
Archiv for Pharmaci og Chemi
 Danmarks Apothekerforening, 14 Hammerichsgade, Copenhagen, Denmark
 F; S; B; CA, BA, NA

87
Archiv der Pharmazie und Berichte der Deutschen Pharmazeutischen Gesellschaft
 Verlag Chemie, Hauptstr. 127. (17a) Weinheim/Bergstr., Germany
 M; S; CLML, CA, NA, BA, IM, BIP

88
Archives Internationales de Pharmacodynamie et de Thérapie
 Secrétariat de la Rédaction, 3, Albert Baertsoenkaai, Gent, Belgium
 M; S; CLML, CA, AWM, BIP, EM, NA, IM, BA, IABS

89
Archives de Médecine et de Pharmacie Militaires
 Title changed to Revue de Service de Santé Militaire which See

90
Archives de Médecine et de Pharmacie Navales
 Title changed to Revue de Médecine Navale (Metropole et Outre-mer) which See

91
Archives of Pharmacy Beograd
See APXNB

92
Archivio de Farmacologia Sperimentale e Scienze Affini
 Via Roma 33, Pisa; Viale G. Rossini 2 c, Roma, Italy
 M; S

93
Archivio Italiano de Scienze Farmacologiche. Organo Ufficiale della Società Italiana di Farmacologia
 Società Litografica Modenese, Modena, Italy
 BM; S; CA, CLML, EM, IM

94
Archivos de Bioquímica, Química y Farmacia de Tucumán
 Universidad Nacional de Tucumán, Qyacucho 482, Tucumán, Argentina
 I; S; CA, AWM, BA, BIP

95
Archivos Farmacéuticos Bago
 Laboratorios Bago, Rivera Indarte 1468, Buenos Aires, Argentina
 Ceased publication

96
Archivos de Farmacia y Bioquímica de Tucumán
 Title changed to Archivos de Bioquímica, Química y Farmacia de Tucumán which See

97
Archivos del Instituto de Farmacología Experimental
 Vitrubio 16, Madrid, Spain
 SA; S; CA, CLML, IM

ABBREVIATIONS - frequency of issue: A—annually; BM—bimonthly; ca.—approximately; F—fortnightly; 4x/yr., etc.—4 times a year; I—irregularly; M—monthly; Q—quarterly; SA—semi-annually; SM—semi-monthly; W—weekly
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 items marked with an asterisk (*) have not been verified.

- 98
Argus des Pharmaciens
 26, rue Brey, Paris 17e, France
 M; B
- 99
Arhiv za Farmaciju
 Farmaceutsko Društvo, Zeleni venac 1/1, Beograd, Yugoslavia
 BM; S, B
- 100
Arizona Pharmacist
 1028 East McDowell Street, Phoenix, Ariz., U.S.A.
 M; O, B, N
- 101
Arkansas Druggist
 See Arkansas Pharmacist
- 102
Arkansas Pharmacist
 Arkansas Pharm. Assoc., 607 Wallace Building, Little Rock, Ark., U.S.A.
 —> O, B, N
- 103
Arquivos de Instituto de Farmacologia e Terapêutica Experimental
 Universidade de Coimbra, Coimbra, Portugal
 A; S
- 104
Ars Pharmaceutica
 Facultad da Farmacia, Universidad de Granada, Granada, Spain
 BM; S, H, O, A
- 105
Arzneimittel-Forschung
 Editio Cantor K.G., Aulendorf i. Württ., Germany
 M; S; CA, CLML, IM, BA, IABS
- 106
Arzt und Apotheke
 Apothekerverein Nordrhein, Düsseldorf, Germany
 Probably ceased publication
- 107
Association of Food and Drug Officials of the United States Quarterly Bulletin
 See Quarterly Bulletin, Association of Food and Drug Officials of the United States
- 108
Atti del Convegno, della Società Italiana di Scienze Farmaceutiche
 Milano, Italy
 A; S
- 109
Auburn Pharmacist
 Auburn Univ., Auburn, Ala., U.S.A.
 Q; N
- 110
Australasian Journal of Pharmacy
 Australasian Pharmaceutical Publishing Co. Ltd., 18-22 Saint Francis St., Melbourne C.1, Australia
 M; S, N, B, L; CA, BA
- 111
Australasian Pharmaceutical Notes and News
 35 Bligh St., Sydney, Australia
 M; Ceased publication
- 112
The Azoan
 Official Publication of the Alpha Zeta Omega Pharmaceutical Fraternity
 Jules Resnick, Editor, 18 Sunnyside Road, West Orange, N.J., U.S.A.
 3x/yr.; N, B
- 113
The Badger Pharmacist
 Ceased Publication
- 114
Balans
 Bosch van Drakesteinlaan 12, Utrecht, Netherlands
 BM
- 115
Beaver Pharmacist
 Oregon State University, School of Pharmacy, Corvallis, Oregon, U.S.A.
 —> B, N;
- 116
Beiträge zur Geschichte der Pharmazie und ihrer Nachbargebiete
 Included irregularly in Pharmazie, which See
- 117
Berichte über die Gesamte Physiologie und Experimentelle Pharmakologie
 Springer-Verlag, Reichpietschauer 20, Berlin W 35, Germany
 ca. 2 or 3/M; A; CA, BIP
- 118
Bibliografica Farmaceutica; con Note di Dietetica e di Alimentazione
 Segnalazioni Bibliografiche Mensili, Casella Postale 1791, Milano, Italy
 M; A
- 119
Bilancia e Pestello
 Varese, Italy
 M; B
- 120
Bilten Naučne Dokumentacije za Farmaciju
 (Bulletin de Documentation Scientifique pour la Pharmacie)
 Jugoslovenski Centar za Tehničku i Naučnu Dokumentaciju, Admirala Geprata 16, Beograd, Yugoslavia
 BM; A
- 121
Biochemical Pharmacology
 Pergamon Press, 122 E. 55th Street, New York, N.Y., U.S.A.
 Q; S; CA, IM, BA, IABS, BIP, NA
- 122
Biochemische Zeitschrift
 Springer-Verlag, Berlin, Germany
 I; S; CA, IM, BA
- 123
Biuletyn Instytutu Róślin Leczniczych
 Państwowy Inst. Naukowy Leczniczych Surowców Róślinnych, ul. Libelta nr.27, Poznań, Poland
 Q; S; CA
- 124
The Blue and Gold Triangle of Lambda Kappa Sigma
 Ursula Biermacher, Editor, 1400 Chicago Ave., Evanston, Ill., U.S.A.
 3x/yr.; N
- 125
Boletim da Academia Nacional de Farmácia
 Rio de Janeiro
 Title changed to Anais da Academia Nacional de Farmácia which See
- 126
Boletim da Associação Brasileira de Farmacêuticos
 Section of Revista Brasileira de Farmácia, which See

- 127
Boletim da Associação Farmacêutica de Pernambuco*
 Rua da Aurora 87, 1° and., Recife, Pernambuco, Brazil
 M
- 128
Boletim da Escola de Farmacia
 Ed. da Escola de Farmacia, Rua do Norte, Coimbra, Portugal
 I; S; CA, BA
- 129
Boletim da Sociedade Brasileira de História da Farmácia
 Special section of Revista Brasileira de Farmácia, which See
- 130
Boletín del Colegio Colombiano de Químicos Farmacéuticos
 Francisco Llanos, Secretaria General, Edif. Jorge Garces B. No. 308, Cali, Colombia
 M; B, N
- 131
Boletín del Colegio de Farmacéuticos y Químicos de Guatemala*
 Guatemala City, Guatemala
- 132
Boletín de Información Bromatológica
 Sociedad Española de Bromatología, Ciudad Univ. (Edificio Facultad de Farmacia), Madrid, Spain
 12x/yr.; S; CA
- 133
Boletín de Información del Consejo General
 Colegios Of. de Farmacéuticos, Apdo. 1.038, Madrid, Spain
 M; O
- 134
Boletín Informativo
 Av. Agraciada 1464, Montevideo, Uruguay
 M; B
- 135
Boletín informativo de Filhos
 Federación de Hermandades Medicofarmacéuticas de San Cosme y San Damián, Madrid, Spain
 I; Ceased publication
- 136
Boletín de la Sociedad Española de Historia de la Farmacia
 Campoamor 18, Madrid, Spain
 Q; H
- 137
Bollettino Chimico Farmaceutico
 Via Solferino 25, Milano, Italy
 M; S; CA, CLML, AWM, EM, BIP, IM, BA
- 138
Bollettino della Società Italiana Di Farmacia Ospitaliera
 Farmacia Ospedale Maggiore, Milano, Italy
 Q; B, S, N
- 139
The Bond of Kappa Epsilon
 National Pharmaceutical Fraternity for Women
 Loretta E. Fox, Editor, College of Pharmacy, University of Florida, Gainesville, Fla., U.S.A.
 I; N, B
- 140
Boticario
 New Mexico Pharmaceutical Assoc., 110 Harvard Drive, S.E., Albuquerque, N.M., U.S.A.
 M; N, O
- 141
Bristol Digest
 Bristol Laboratories, Thompson Rd., Syracuse, N.Y., U.S.A.
 Ceased publication
- 142
British and Colonial Pharmacist
 Title changed to British and Overseas Pharmacist which See
- 143
British and Overseas Pharmacist
 Title changed to British and Overseas Pharmacy and Medicine which See
- 144
British and Overseas Pharmacy and Medicine
 Title changed to Chemotherapy Review which See
- 145
British Journal of Pharmacology and Chemotherapy
 British Medical Association, Tavistock Square, London, W.C.1, U.K.
 Q; S; CA, CLML, EM, AWM, BA, BIP, IM, NA, AIBS
- 146
The Bronx Pharmacist
 Bronx County Pharmaceutical Assoc., 1215 Gerard Ave., Bronx 52, New York, N.Y., U.S.A.
 M; O, N, B
- 147
Brooklyn Pharmacist
 Consolidated Brooklyn Retail Pharmacist, Inc., 26 Court Street, Brooklyn 1, N.Y., U.S.A.
 M; O, N
- 148
Bulletin of the American College of Apothecaries.
 See Voice of the Pharmacist
- 149
Bulletin of the American Society of Hospital Pharmacists
 Title changed to American Journal of Hospital Pharmacy which See
- 150
Bulletin Bibliographique, Société de Technique Pharmaceutique
 See Technique Pharmaceutique
- 151
Bulletin du Cercle Benelux d'Histoire de la Pharmacie
 Dr. E. Grendel, Lange Tiendeweg 9, Gouda, Netherlands
 I; H
- 152
Bulletin Djahan-Daroussazi*
 Dr. Mehdi Namdar, Pharmacia Allemani, Istanbul Avenue, Teheran, Iran
- 153
Bulletin of the Faculty of Pharmacy, Kinki University
 See Kinki Daigaku Yakugakubu Kiyô
- 154
Bulletin de la Fédération Française des Amicales de Pharmaciens de Réserve
 13, rue Ballu, Paris 9e, France
 Q
- 155
Bulletin de la Fédération Internationale Pharmaceutique
 Title changed to Journal Mondial de Pharmacie which See

ABBREVIATIONS - frequency of issue: A—annually; BM—bimonthly; ca.—approximately; F—fortnightly; 4x/yr., etc.—4 times a year; I—irregularly; M—monthly; Q—quarterly; SA—semi-annually; SM—semi-monthly; W—weekly
 type of periodical: A—abstracts or reviews; B—business or professional; D—documentation; H—historical; L—lists of new drugs; N—news; O—official or legal; S—scientific
 where indexed or abstracted: AWM—Abstracts of World Medicine; BA—Biological Abstracts; BIP—Bulletin de l'Institut Pasteur; BPI—Business Periodicals Index; CA—Chemical Abstracts; CIHL—Cumulative Index of Hospital Literature; CLML—Current List of Medical Literature; EM—Excerpta Medica; IABS—International Abstracts of Biological Sciences; IM—Index Medicus; NA—Nutrition Abstracts
 items marked with an asterisk (*) have not been verified.



156

Bulletin d'information, Fédération Pharmaceutique Méditerranéenne
6 Blvd. d'Athens, Marseille 1, France
M; Probably discontinued

157

Bulletin d'Information de Service de Santé Militaire
8 bis rue des Recollets, Paris 10, France

158

Bulletin of the Nagoya City University, Pharmaceutical School
See Nagoya Shiritsu Daigaku Yakugakubu Kiyo

159

Bulletin on Narcotics, United Nations, Department of Social Affairs
Unesco Publications Center, U.S.A., 152 W. 42nd St., New York 36,
N.Y., U.S.A.
4x/yr.; O, S; AWM, CA

160

Bulletin of the National Formulary Committee
Title changed to Drug Standards which See

161

Bulletin of the Ontario College of Pharmacy
46 Gerrard St. East, Toronto 2, Ontario, Canada
5x/yr.; S, N; CA

162

Bulletin de l'Ordre National des Pharmaciens
4 Avenue Ruysdael, Paris 8, France
Q; O

163

Bulletin of the Parenteral Drug Association
130 East 59th St., New York 22, N.Y., U.S.A.
BM; S; CA

164

Bulletin of the Pharmaceutical Research Institute
350 Kosobe, Takatsuki City, Osaka-fu, Japan
BM; S; CA, BA; (In English, German)

165

Bulletin, Pharmacognosy Laboratory, India Ministry of Health
Calcutta, India

166

Bulletin of Pharmacy
Combined with Western Druggist to form Drug Bulletin in 1928

167

Bulletin of the Philadelphia College of Pharmacy
43rd St. and Kingessing Ave., Philadelphia 4, Pa., U.S.A.
M; N

168

Bulletin. School of Pharmacy. University of Wisconsin. University
Extension Division
See School of Pharmacy Bulletin

169

Bulletin des Sciences Pharmacologiques
Merged with Journal de Pharmacie et de Chimie to form Annales
Pharmacologiques Françaises

170

Bulletin de la Société de Pharmacie de Bordeaux
Faculté de Médecine et de Pharmacie, rue Leyteire, Bordeaux,
France
Q, S, O, B; CA, BIP

171

Bulletin de la Société de Pharmacie de Lille
Faculté de Médecine et de Pharmacie, Lille, France
Q; S; CA

172

Bulletin de la Société de Pharmacie de Marseille
M. le Prof. F. Pellissier, Sec. Gén., 92, rue Auguste Blanqui,
Marseille, France
Q; S; CA

173

Bulletin de la Société de Pharmacie de Nancy
5, rue Albert-Lebrun, Nancy, France
Q; S; CA

174

Bulletin de la Société de Pharmacie de Strasbourg
Faculté de Pharmacie, 2 rue St. Georges, Strasbourg, France
Q

175

Bulletin de la Société des Sciences Médicales du Grand-duché de
Luxembourg
Junglinster, Luxembourg
BM; S; CLML, IM

176

Bulletin des syndicats Pharm. de la Région Parisienne
2, rue Récamier, Paris 6e, France
M; B

177

Bulletin, Texas University College of Pharmacy
See Texas Journal of Pharmacy

178

Bulletin des Travaux de la Société de Pharmacie de Bordeaux
See Bulletin de la Société de Pharmacie de Bordeaux

179

Bulletins et Mémoires de l'École Nationale de Médecine et de
Pharmacie de Dakar
Title changed to Bulletins et Mémoires de la Faculté de Médecine
et de Pharmacie de Dakar which See

180

Bulletins et Mémoires de la Faculté de Médecine et de Pharmacie
de Dakar
Librairie Arnette, 2 rue Casimir Delavigne, Paris 6, France
A; S; BIP

181

Burma Pharmaceutical Journal*
252, Barr Street, Rangoon, Burma

C

182
C.R.D.A. News
 Chicago Retail Druggists' Assoc., Suite 820, 32 West Randolph St.,
 Chicago 1, Ill., U.S.A.
 M; B

183
Caderno de Terapeutica Labor
 Laboratória S.A., R. Carlos Gomes, 924 San Paulo, Brazil
 I

184
Cahiers du Pharmacien de France
 Paris, France

185
California Pharmacy
 234 Loma Dr., Los Angeles 26, Calif., U.S.A.
 M; O, B, N

186
Canadian Pharmaceutical Journal
 Canadian Pharmaceutical Association, 221 Victoria St., Toronto 1,
 Ontario, Canada
 M; B, O, S; CA

187
Capsule
 Northeastern University College of Pharmacy, Boston, Mass., U.S.A.
 BM; N

188
Carolina Journal of Pharmacy
 North Carolina Pharmaceutical Association, Drawer 151, Chapel
 Hill, N.C., U.S.A.
 M; N, O; CA

189
Central African Pharmaceutical Journal
 Pharmaceutical Press of Rhodesia Ltd., P.O. Box 1777, Bulawayo,
 S. Rhodesia
 M; B, O, S

190
Central Pharmaceutical Journal
 221 North LaSalle Street, Chicago 1, Ill., U.S.A.
 M; B

191
Cercle Benelux d'Histoire de la Pharmacie
 Title changed to Bulletin du Cercle Benelux d'Histoire de la
 Pharmacie which See

192
Československá Farmacie
 Státní Zdravotnické Nakladatelství, Krakovská 8, Praha 2, Czecho-
 slovakia
 10x/yr; S, B, O, A; CA, BA

193
Chain Store Age, Drug Executives Edition
 2 Park Avenue, New York 16, N.Y., U.S.A.
 13/yr.; B

194
Chain Store Age, Drug Store Managers Edition
 2 Park Avenue, New York 16, N.Y., U.S.A.
 M; B

195
Chemical Age
 Benn Bros. Ltd., 154 Fleet St., London, E.C.4, U.K.
 W; N, B; CA

196
Chemical Age of India
 65, Mahatma Gandhi Road, Fort, Bombay 1, India
 Q; S; CA

197
Chemical and Pharmaceutical Bulletin
 Pharmaceutical Society of Japan, Faculty of Pharmaceutical
 Sciences, University of Tokyo, Maruzen Co., Ltd., P.O. Box 605,
 Tokyo Central, Tokyo, Japan
 BM; S; CLML, CA, IM, NA

198
Chemisch Weekblad
 D. B. Centen's Uitg. Mij. N.V., le Weteringplantsoen 8, Amsterdam
 C, Netherlands
 W; O, S, N; CA, BA

199
Chemische Berichten
 Hilversum, Netherlands

200
Chemische en Pharmaceutische Techniek
 Dordrecht, Netherlands
 Ceased publication

201
Chemische Rundschau
 Buchdruckerei Vogt-Schild A.G., Solothurn, Switzerland
 SM; B; CA

202
Chemist and Druggist
 Morgan Bros., 28 Essex St., Strand, London, W.C.2, U.K.
 W; B, S; CA, AWM

203
Chemist & Druggist News
 31 Haman Street, Bombay 1, India
 M; N

204
Chemistry and Industry
 14 Belgrave Sq., London, S.W.1, U.K.
 W; S; CA

205
Chemists Review
 For the Pharmaceutical Profession, Trade and Industry.
 Pharmaceutical Publications Pakistan, Picture House Street, Bunder
 Road, Karachi, Pakistan
 M; N

206
**Chemotherapia, International Journal of Pharmacology, Toxicology,
 Clinic and Therapy**
 S. Karger, Basel, Switzerland
 BM; S; IM, BA

207
Chemotherapy Research Bulletin
 Chemotherapy Research Institute, Inc., 507 Fifth Avenue, New York
 17, N.Y., U.S.A.
 BM; S, L; (Card format)

ABBREVIATIONS - frequency of issue: A-annually; BM-bimonthly; ca.-approximately; F-fortnightly; 4x/yr., etc.-4 times a year; I-irregularly; M-monthly; Q-quarterly; SA-semi-annually; SM-semi-monthly; W-weekly
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 items marked with an asterisk (*) have not been verified.

- 208
Chemotherapy Review
194 Bishopgate, London, E.C. 2, England, U.K.
M; A
- 209
Chicago Retail Druggist Association News
See C.R.D.A. News
- 210
Chimica, La, e L'industria
Via S. Tomaso, 3, Milano, Italy
M; S, N; CA, BA
- 211
Chiryō (Therapy)
Nanzando 36 Tatsuoka-cho, Hongo Bunkyo-ku, Tokyo, Japan
M; S; CA
- 212
Chung Kuo Yao Hsüeh Chih
Chinese Pharmaceutical Association Journal
See Yao Hsüeh Hsüeh-Pao
- 213
Ciba Journal
CIBA Limited, Basle, Switzerland
4x/yr.; H, S
- 214
Ciba Monographs
Ciba Pharma Ltd., Bombay, India
Probably discontinued
- 215
Ciba Therapeutic Index
Ciba Pharmaceutical Products, Summit, N.J., U.S.A.
A; Probably discontinued
- 216
Cibascope
Ciba Pharmaceutical Products, Summit, N.J., U.S.A.
4x/yr.; H, S; Ceased publication
- 217
Ciencia
Federación de Químicos-Farmacéuticos de Guayas, Guayaquil, Ecuador
I; Probably discontinued
- 218
Cincinnati Academy of Pharmacy News
7404 Juler Ave., Cincinnati 43, Ohio., U.S.A.
M; N
- 219
Circulaire, Union Mondiale des Sociétés d'histoire Pharmaceutique
Rotterdam, Netherlands
—; H
- 220
Circular Farmacéutica
Via Layetana 94, Barcelona, Spain
I; S; CA
- 221
Claridad*
Bolivia
- 222
Cleveland Academy of Pharmacy Journal
1935 Euclid Ave., Cleveland 15, Ohio, U.S.A.
M; N, B
- 223
Clinica Chimica Acta
Elsevier Publishing Co., Spuistraat 110-112, Amsterdam C, Netherlands
BM; S; IM, CA
- 224
Clinical Chemistry
American Association of Clinical Chemists, 3110 Elm Ave., Baltimore, Md., U.S.A.
BM; S; CLML, CA, IM, BA
- 225
Clinical Pharmacology and Therapeutics
C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, Mo., U.S.A.
BM; S; IM, BIP
- 226
Clinical Review and Research Notes
Pfizer Laboratories, Brooklyn 6, N.Y., U.S.A.
Discontinued
- 227
Clinical Symposia
Ciba Pharmaceutical Company, Summit, N.J., U.S.A.
Q; S
- 228
Colegio Farmacéutico
Colegio de Farmacéuticos, Casilla 1136, Santiago, Chile
Ceased Publication; continued as Colegio Químico Farmaceutico which See
- 229
Colegio de Farmacéuticos de la Provincia de Santa Fe*
230
Colegio Químico Farmaceutico
Merced 50, Santiago, Chile
Ca, M; N
- 231
Collana de Monografie di Storia della Farmacia
Associazione Italiana de Storia della Farmacia, Pisa, Italy
Ceased publication
- 232
Collectanea Pharmaceutica Suecica
(Reprints. Some in English)
Kungl. Farmaceutiska Inst. Bibliotek, Kungstensgatan 49, Stockholm Va, Sweden
A; S; CA
- 233
Colorado Journal of Pharmacy
University of Colorado School of Pharmacy, Boulder, Colo., U.S.A.
Q; N



- 234
Columbus Clinical Group Journal
 111 W. Third Ave., Columbus 1, Ohio, U.S.A.
 SA
- 235
The Communicator
 Publication of Phi Delta Chi
 Conrad A. Blomquist, College of Pharmacy, University of Illinois,
 Chicago 12, Ill., U.S.A.
 4x/yr.; N, B

- 236
Comptes Rendus
 Proceedings International Congress of Hospital Pharmacists
 Basel Switzerland
 I; Probably discontinued
- 237
**Concepción, Chile [City] Universidad, Facultad de Química y farmacia,
 Tesis de Químicos Farmacéuticos**
 Facultad de Química y Farmacia, University of Concepción, Concepción,
 Chile
 A, S

- 238
**Congreso Internacional de Antibióticos Quimioterápicos [Actas y
 Trabajos]**
 Buenos Aires, Argentina
 I; Probably discontinued
- 239
Connecticut Pharmacist
 Connecticut Pharmaceutical Assoc., Babcock Ave., Plainfield, Conn.,
 U.S.A.
 M; B, N, O

- 240
Consultant
 Smith, Kline and French Laboratories, 1530 Spring Garden St.,
 Philadelphia 1, Pa., U.S.A.
 10x/yr.; S
- 241
Copnyp List
 Special Libraries Assoc., Pharmaceutical Section, Committee on
 Pharmaco-Medical Nonserial Industrial Publications, Theodore
 Treible, Chairman, Norwich Pharmacal Co., 17 Eaton Ave.,
 Norwich, N.Y., U.S.A.
 Q; D

- 242
Correio do Mundo Farmacêutico
 Rua Buenos Aires 137, Rio de Janeiro, Brazil
 M; S, B
- 243
Corriere dei Farmacisti
 Casella Postale 54, Napoli, Italy
 M; N

- 244
Cronach's Farmaceutiche
 Ermina Sala, Editor, Via G. Jon, 18, Milano, Italy
 ca. BM; N, B
- 245
**Current Contents, Weekly Guide to Chemical, Pharmaco-Medical and
 Life Sciences**
 Institute for Scientific Information, 33 South 17th St., Philadelphia
 3, Pa., U.S.A.
 W; S

- 246
Current Iodine Literature
 Ceased publication
- 247
Current Medicine and Drugs
 7235 Wisconsin Ave. N.W., Washington 14, D.C., U.S.A.
 M

D

- 248
D & O News
 Dodge & Olcott, Inc., 180 Varick St., New York 14, N.Y., U.S.A.
 M; N

- 249
Dansk Tidsskrift for Farmaci
 Danmarks Farmaceutiske Selskab, Universitetsparken 2, Copen-
 hagen, Denmark
 M; S; CA, CLML, BA, AWM, NA

- 250
Dansk Tidsskrift for Farmaci, Supplementum
 Danmarks Farmaceutiske Selskab, Universitetsparken 2, Copen-
 hagen, Denmark
 I; S; CLML, CA, BA

- 251
Dedef, Boletín Suplementario
 Iztueta, 7, San Sebastián, Spain
 Q; O, B

- 252
Delaware County Pharmacist
 1582 Chichester Ave., Linwood, Pa., U.S.A.
 M; N

- 253
Delaware Pharmacist
 Delaware Pharmaceutical Society, 800 Hillside Rd., Wilmington 7,
 Del., U.S.A.
 M; N

- 254
Deutsche Apotheker
 Ernst-Luttichstrasse 2, Oberursel, Taunus, Germany
 M; S

- 255
Deutsche Apotheker Post
 München, Germany
 Ceased publication

- 256
Deutsche Apotheker-Zeitung
 Birkenwaldstrasse 44, Stuttgart, Germany
 W; S; O; CA

- 257
**Digest of Current Activities and Trends, Drug, Chemical and Allied
 Trades Association**
 291 Broadway, New York 7, N.Y., U.S.A.
 F; B, A

ABBREVIATIONS - frequency of issue: A-annually; BM-bimonthly; ca.-approximately; F-fortnightly; 4x/yr., etc.-4 times a year; I-irregularly; M-monthly; Q-quarterly; SA-semi-annually; SM-semi-monthly; W-weekly
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 items marked with an asterisk (*) have not been verified.

- 258
Dissertationes Pharmaceuticae
Polish Academy of Science, Pharmacological Institute, Division of the Medical Plants, 16 Grzegorzeczka Str., Krakow, Poland
Q; S, B, O; CA, BA, IABS
- 259
Distribuzione delle Specialità Medicinali
Associazione Nazionale Grossisti Specialità Medicinali, Milano, Italy
A; B
- 260
Drake Post-Script
Drake University, College of Pharmacy, Des Moines, Ia., U.S.A.
A; N
- 261
Drogist. Fachzeitschrift für Drogen, Farben, Foto, Kosmetik
Verlag die Wirtschaft, Berlin, Germany
M
- 262
Drogisten Nachrichten
Drogistenverband Hamburg und Drogistenverband, Schleswig-Holstein, Hannover, Germany
M; O
- 263
Drogistenwoche*
Leipzig, Germany
- 264
Drogistenzeitung
Vienna, Austria
Ceased publication
- 265
Drug and Allied Industries
1070 Spring Street, N.W., Atlanta, Ga., U.S.A.
M; B, N; CA
- 266
Drug and Chemical Exports
Morgan Brothers Ltd., 28 Essex Street, Strand, London, W.C. 2, U.K.
M; S, B
- 267
Drug and Cosmetic Industry
Drug Markets, Inc., 101 West 31st St., New York 1, N.Y., U.S.A.
M; S, B; CA, BA
- 268
Drug Bulletin
Ceased publication in 1933
- 269
Drug Merchandising
481 University Ave., Toronto 2, Ontario, Canada
M; B
- 270
Drug News Weekly
7 East 12th Street, New York 3, N.Y., U.S.A.
W; B, N
- 271
Drug Progress
See Illinois Pharmacist
- 272
Drug Research Reports
1152 National Press Building, Washington 4, D.C., U.S.A.
SM; O, S
- 273
Drug Standards
American Pharmaceutical Assoc., 2215 Constitution Ave., Washington 7, D.C., U.S.A.
Ceased publication
- 274
Drug Topics
155 East 44th St., New York 17, N.Y., U.S.A.
F; B, N; CIHL
- 275
Drug Trade News
155 East 44th St., New York 17, N.Y., U.S.A.
F; B, N
- 276
Druggists' Bulletin
Name changed to Bulletin of Pharmacy in 1891
- 277
Druggists' Circular
Merged into Drug Topics in 1940
- 278
Drugs and Medicines of North America
Ceased publication
- 279
Drugs Made in Germany
Export journal dealing with Drugs, Raw, Basic and Adjuvant Chemicals as well as Machines, Appliances, Apparatus and Equipment for the Chemo-pharmaceutical industry.
Editio Cantor, Aulendorf i. Württ., Germany
Q; S, B
- 280
Drugs of Today
English edition of Medicamentos de Actualidad, which See 281
- 282
Duchesne Pharmacist
Name changed to Duquesne University Pharmacy Forum which See 282
- 282
Duquesne University Pharmacy Forum
School of Pharmacy, Duquesne University, 17 Canevin Hall, Pittsburgh 19, Pa., U.S.A.
Q; N, S, B; (Student Publication)

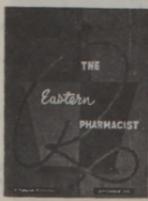
E

283

East African Pharmaceutical Journal

Pharmaceutical Society of East Africa, P.O. Box 537, Nairobi, Kenya, E. Africa

Ceased publication





284
Eastern Pharmacist
 E-38 Hauz Khas Enclave, New Delhi 16, India
 M; N, S, H

285
Eco Farmacêutico
 Rua de Santos-o-Velho 12, Lisboa, Portugal
 M; N

286
Eczacılık Bülteni
 K.C. Güven, Eczacı Okulu, Galenik Docenti, Universite, Istanbul, Turkey
 M

287
Egyptian Pharmaceutical Bulletin of the Pharmaceutical Society of Egypt and The Syndicate of Pharmacists
 Dar El Hikma, 42, Sharia Kasr El-Aini St., Cairo, Egypt, U.A.R.
 M, S, O; CA

288
Egyptian Pharmaceutical Reports of the Pharmaceutical Society of Egypt and the Syndicate of Pharmacists
 Name changed to the Egyptian Pharmaceutical Bulletin, which See

289
Ephemeris of Materia Medica, Pharmacy, Therapeutics
 Ceased publication

290
Ergebnisse der Physiologie, Biologische Chemie und Experimentelle Pharmakologie
 Springer-Verlag, Berlin W 35, West Berlin, Germany
 I; S; CA, CLML, IM, IABS

291
La Escuela de Farmacia; Organ de la Facultad de C.C.Q.Q. Y. Farmacia
 Editor, Oscar Paz Pinto; Facultad de Ciencias Químicas y Farmacia, Guatemala, Central America
 BM; S, B

292
Esculapio
 Sindicato Químico-farmacéutico, La Paz, Bolivia
 I; Probably discontinued

293
Especialidades Roche
 Servicio Científico Roche, Montevideo, Uruguay

294
L'Etudiant en Pharmacie*
 85 Boulevard Saint Michel, Paris 5, France

295
Évolution Pharmaceutique
 14, Place Jacques Bonsergent, Paris 10^e, France
 M; B

296
Excerpta Medica, Section II. Physiology, Biochemistry & Pharmacology
 Herengracht 119-123, Amsterdam C, Netherlands and 2 East 103rd Street, New York 29, N.Y., U.S.A.

297
Export Review of the British Drug and Chemical Industries
 See Drug and Chemical Exports

298
Extracta
 Departamento de Investigaciones Farmacológicas, Barcelona, Spain
 BM; Probably discontinued

F

299
F. D. C. Reports
 "The Pink Sheet"
 1152 National Press Building, Washington 4, D.C., U.S.A.
 W; B, O, N

300
FWDA News Capsule
 Federal Wholesale Druggists Assoc. of U. S. and Canada, 2 Lexington Ave., New York 10, N.Y., U.S.A.
 F; N, B

301
Fach Zeitschrift
 Welckerstrasse 5, Hamburg 36, Germany

302
Faculté
 Association Amicale des Anciens Elèves de la Faculté Française de Médecine et de Pharmacie de Beyrouth, Rue de Damas, Beyrouth, Lebanon
 M; N, S

303
Farmaceutický Obzor
 Mr. Imrich Kondel, Bratislava, Markusova 7, Czechoslovakia
 M; S; CA

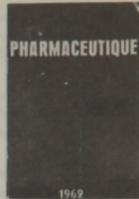
304
Farmacêutico
 Spanish edition of Pharmacy International
 Johnston Export Publishing Co., 386 Fourth Avenue, New York 16, N.Y., U.S.A.
 M; B, S, N

ABBREVIATIONS - frequency of issues: A-annually; BM-bimonthly; ca. -approximately; F-fortnightly; 4x/yr., etc.-4 times a year; I-irregularly; M-monthly; Q-quarterly; SA-semi-annually; SM-semi-monthly; W-weekly
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 items marked with an asterisk (*) have not been verified.

- 305
Farmacéutico-Bioquímico
Lima, Peru
Ceased publication
- 306
Farmacéutico Brasileiro
Rio de Janeiro, Brazil
Ceased publication
- 307
Farmaceutisk Tidende
Dansk Farmaceutforening, 20 Stormgade, Copenhagen 5, Denmark
W; S, B, CA
- 308
Farmaceutiskt Notisblad
See *Farmaceuttinen Aikakauslehti*, *Farmaceutisk Notisblad*
- 309
Farmaceutski Glasnik
Masarykova ul. 2/11, Zagreb, Yugoslavia
M; S, N; CA
- 310
Farmaceutsko Društvo N R Srbije, Sekcija Javnih Apoteka, Bilten
Zeleni venac 1/1, Beograd, Yugoslavia
6x/yr.
- 311
Farmaceutsk Revy
Vallingatan 26 (IV), Stockholm C, Sweden
W; S, N, B, L; CA, BA
- 312
Farmaceutski Vestnik
Zaloška cesta broj 2, Ljubljana, Yugoslavia
M; S; CA
- 313
Farmaci e Farmacie
Società Prodotti Antibiotici, Milano, Italy
Ceased publication
- 314
Farmacia
Ministerului Transporturilor și Telecomunicațiilor, Direcția Centrală a Difuzării și Expedierii Presei, Calei Victoriei, nr. 12, Bucharest, Rumania
BM; S; CA
- 315
Farmacia
Associazione Sindacale dei Farmacisti Proprietari, Via in Miranda, 10, Rome, Italy
I; Probably discontinued
- 316
Farmacia
Apartado Postal 92, San José, Costa Rica
Q; S, B
- 317
Farmácia
(Bratislava, Czechoslovakia)
Title changed to *Farmaceutický Obzor* which See
- 318
Farmacia Argentina
Ceased publication
- 319
Farmácia do Brasil
Rua da Quitanda 20, Sobrelaja 501, 5ª and., Rio de Janeiro, Brazil
Q; Probably discontinued
- 320
Farmacia Chilena
Santiago, Chile
Ceased publication
- 321
Farmacia Cubana
Camara Mercantil de la Republica de Cuba, Havana, Cuba
I; Probably discontinued
- 322
Farmacia Moderna, La
Canterbury Press, 2001 Calumet Ave., Chicago 16, Ill., U.S.A.
Ceased publication
- 323
Farmacia Nueva
Atocha 25, Madrid, Spain
M; S, N; CA, BA
- 324
Farmacia Nuova
Ed. Minerva Medica, Corso Bramante 83-5, Torino, Italy
M; B, N
- 325
Farmacia Peruana
Ceased publication
- 326
Farmacia Profesional*
Apartado 1062, Panama, Panama
- 327
Farmacia y Química
Casilla de Correo 2568, Lima, Peru
I; S; CA
- 328
Farmacia Rurale*
Visone d'Acqui, Italy
- 329
Farmacista
via Pabstra 75, Roma, Italy
M; B, O
- 330
Farmacista Italiano
Bollettino Mensile del Sindacato Nazionale Fascista dei Farmacisti
Ceased publication
- 331
Farmacja Polska
Długa 16, Warszawa, Poland
F; B, S; CA, IABS
- 332
Farmaco, Edizione Pratica
Istituto di Chimica Farmaceutica, Via Taramelli N 2, Pavia, Italy
M; S; CA, CLML, AWM, BA, BIP, IM
- 333
Farmaco, Edizione Scientifica
Istituto di Chimica Farmaceutica, Via Taramelli N 2, Pavia, Italy
M; S; CA, CLML, AWM, BA, BIP, IM
- 334
Farmaco Scienza e Tecnica
Name changed to *Il Farmaco* which is issued in two sections, *Edizione Pratica* and *Edizione Scientifica*, which See
- 335
Farmacodonto
Directorio Academico "Oswaldo Cruz," São Luís, Maranhao, Brazil
Probably discontinued
- 336
Farmacodontologia
Gremio Coelho e Souza da Faculdade Farmácia e Odontologia de Manaus, Brazil
Probably discontinued
- 337
Farmacognosia
Instituto José Celestino Mutis, Serrano 119, Madrid, Spain
4x/yr; S; CA, CLML, IM, BA

- 338
Farmacología*
Guatemala, Guatemala
- 339
Fármacos Suplementos
Calle Guetaria, 1, San Sebastián, Spain
M & Q; L
- 340
Farmacoterapia Actual
Alberto Aguilera 10, Madrid, Spain
Probably discontinued
- 341
Farmacum
Rua José Bonifácio, 110, 2ª Sobreloja, sl. 12, San Paulo, Brazil
M; Probably discontinued
- 342
Farmaceutikon Deltion
Pan Hellenic Pharmaceutical Assoc., Chalcocococondyli Street, Athens 1, Greece
M; B, N
- 343
Farmaceutikon Deltion, Scientific Edition
Pan Hellenic Pharmaceutical Assoc., Chalcocococondyli, Athens 1, Greece
SA; S
- 344
Farmakolog
Türkiye Eczacılar Cemiyeti, Sirkeci, Arahan No. 27, Istanbul, Turkey
M; Probably discontinued
- 345
Farmakologiya Novykh Lekarstvennykh Sredstv
(Pharmacology of New Drugs)
Gosudarstvennoe Izdatel'svo Meditsinskiĭ Literatury, Moskva, U.S.S.R.
—; S; CA
- 346
Farmakologiya i Toksikologiya
(See also Pharmacology and Toxicology)
Gosudarstvennoe Izdatel'svo Meditsinskiĭ Literatury, Moskva, U.S.S.R.
BM; S; CA, CLML, EM, IM, BA
- 347
Farmakoterapeutické Zprávy
Spofa, Husinecká 11, Praha 11, Czechoslovakia
BM
- 348
Farmakoterapi
Olav Bjornson, Nyegaard and Co., A/S (Nyco), Oslo, Norway
Q; S; CA
- 349
Farmalecta
Elena Pennini, Ave. Libertador Gral. San Martín 8250, Buenos Aires, Argentina
Apparently discontinued
- 350
Farmaseuttinen Aikakauslehti, Farmaceutisk Notisblad
(Printed in Finn. and Swed. with Eng. and Ger. summaries)
Mrs. Kerttu Peldan, Joutsen Apteekki, Lapinlahdenkatu 1, Helsinki, Finland
M; S; CA
- 351
Farmatevt
Sofiya, Bulgaria
Ceased publication
- 352
Farmatevichniĭ Zhurnal
(Pharmaceutical Journal)
Derzhavne Medichne Vidavnitstvo U.S.S.R., Kominterny 16, Kiev, Ukr. S.S.R.
BM; S; CA; (Printed in Ukrainian)
- 353
Farmatsiya
Medgiz, Petrovka 12, Moskva, U.S.S.R.
Ceased publication. Continued as Aptechnoe delo
- 354
Farmatsiya
Sofiya, Bulgaria
Derzhavno Izdatelstvo "Meditsina i Fizkultura," Sofiya, Bulgaria
BM; S; CA
- 355
Federal Pharmacist
Federal Wholesale Druggists Assoc. of the U. S. and Canada, 2 Lexington Ave., New York 10, N.Y., U.S.A.
M; B
- 356
Fédération Française des Amicaux de Pharmaciens de Réserve
(Bulletin Trimestriel de la)
Henri Bonnemain, 23, rue Beautreillis, Paris (4*), France
4x/yr.; B, O
- 357
Fette, Seifen, Anstrichmittel
Industrieverlag von Herhausen K.G., Rödingsmarkt 24, Hamburg 11, Germany
M; S, A; CA
- 358
Fitoterapia
Via Ripamonti 99, Milano, Italy
Q; S; CA
- 359
Florida State Pharmaceutical Association Journal
Fort Myers, Florida, U.S.A.
M; O, N
- 360
Folia Pharmaceutica
Mâilk Zâfir, Göztepe Ortobahır sok No. 16, Istanbul, Turkey
I; S; CA, BA
- 361
Folia Pharmacologica Japonica
See Nihon Yakurigaku Zasshi
- 362
Food, Drug, Cosmetic Law Journal
Commerce Clearing House, Inc., 4025 W. Peterson Ave., Chicago 30, Ill., U.S.A.
M; O; CA
- 363
Food, Drug, Cosmetic Law Reporter
Commerce Clearing House, Inc., 4025 W. Peterson Ave., Chicago 30, Ill., U.S.A.
I; O

ABBREVIATIONS - frequency of issue: A—annually; BM—bimonthly; ca.—approximately; F—fortnightly; 4x/yr., etc.—4 times a year; I—irregularly; M—monthly; Q—quarterly; SA—semi-annually; SM—semi-monthly; W—weekly
type of periodical: A—abstracts or reviews; B—business or professional; D—documentation; H—historical; L—lists of new drugs; N—news; O—official or legal; S—scientific
where indexed or abstracted: AWM—Abstracts of World Medicine; BA—Biological Abstracts; BIP—Bulletin de l'Institut Pasteur; BPI—Business Periodicals Index; CA—Chemical Abstracts; CIHL—Cumulative Index of Hospital Literature; CLML—Current List of Medical Literature, EM—Excerpta Medica; IABS—International Abstracts of Biological Sciences; IM—Index Medicus; NA—Nutrition Abstracts
items marked with an asterisk (*) have not been verified.



- 364
Fordham Pharmacist
 Fordham University, College of Pharmacy, Fordham 58, N.Y., U.S.A.
 ca. 4x/yr; N
- 365
Fortschritte der Arzneimittelforschung
 (Progress in Drug Research)
 Birkhäuser Verlag, Basel, Switzerland und Stuttgart, Germany
 A; S; CA
- 366
Fortschritte der Chemotherapie
 Lieserbrücke, Austria
 I; Probably discontinued
- 367
Forum
 Laboratoires Clévenot, Nogent-sur-Marne, France
 Temporarily discontinued
- 368
France Pharmacie
 24, rue Chaptal, Paris 9e, France
 M; B, BIP
- 369
France et ses Parfums
 Société d'édition de Parfumerie et de Cosmétologie, 7, place
 Antonin-Poncelet, Lyon, France
 BM; S, B, N, H; CA
- 370
Future Pharmacist
 British Pharmaceutical Students' Association, Thomas Waide &
 Sons, Ltd., 25 Oxford St., London W 1, U.K.
 3x/yr.; B, N, O
- G**
- 371
Galenica Acta
 Facultad de Farmacia, Ciudad Universitaria, Madrid, Spain
 4x/yr.; S; CA
- 372
Gazeta de Farmácia
 Caixa Postal 428, Lisboa, Portugal
 Ceased publication
- 373
Gazeta da Farmácia
 Rua da Conceição 31, 3° and., Rio de Janeiro, Brazil
 M; B, N
- 374
Gazette des Hôpitaux Civils et Militaires
 49, rue S. André des Arts, Paris 6e, France
 3x/M; —; AWM, BIP, EM
- 375
Gazzetta Farmaceutica
 Studio Farmaceutico Scalfari, Milano, Italy
 M; B
- 376
Georgia Pharmacist
 University of Georgia. School of Pharmacy, Athens, Ga., U.S.A.
 A; N
- 377
Gekhan Shionogi
 Shionogi Seiyaku Kabushiki Kaisha, 3 Doshomachi, Higashi-ku,
 Osaka, Japan
 Ceased publication
- 378
Geschichte der Pharmazie
 Birkenwerderstr. 44, Stuttgart, Germany
 Q; H
- 379
**Gesundheitspolitische Umschau Vereinigt mit das freie deutsche
 Aerzteblatt**
 Albert Amann, Magalinenstrasse 16, München 19, Germany
 M
- 380
Gifu Yakka Daigaku Kiyo
 Gifu College of Pharmacy, 3-Chôme, Kokonoe, Gifu, Japan
 A; S; CA
- 381
Giornale Italiano di Chemioterapia
 Società Italiana di Chemioterapia, Via Darwin 20, Milano, Italy
 4x/yr.; S; CLML, CA, IM
- 382
Glaxo Topics
 Glaxo Laboratories, Greenford, Middlesex, England, U.K.
 BM; N, O
- 383
Glycerine News
 U. K. Glycerine Producers' Association, 5, Bridewell Place, London,
 E.C.4., U.K.
 BM; N
- 384
Gúia Terapéutica de Cuba. [Archivos Médicos de Cuba]
 Havana, Cuba
 Ceased publication
- 385
Gyógyszerészet
 Title changed to Gyógyszerészet which See
- 386
Gyógyszerészet
 Puskín utca 11-13, Budapest 8, Hungary
 M; S; CLML, CA; in Hungarian with English and German summaries
- 387
Gyógyszerészeti Referáló szemle
 Orvostudományi Dokumentációs Központ, Budapest, Hungary
 I; A

H

- 388
Hamilton County Pharmacist
 Hamilton County Pharmaceutical Assoc., 320 Broadway, Cincinnati
 2, Ohio, U.S.A.
 M; N, B
- 389
Harakeach Haivri
 (The Hebrew Pharmacist)
 The Pharmaceutical Association of Israel, 6 Rothschild Blvd., Tel
 Aviv, Israel
 BM; S, B; CA
- 390
Haury Briefe für den Arzt
 Haury Chemische Fabrik, Roemerstrasse 26, München, 23, Germany
 M
- 391
Hebrew Pharmacist
 P. O. Box 52, Tel Aviv, Israel
 BM; B
- 392
Helvetica Chimica Acta
 Verlag Helvetica Chimica Acta, Basel, Switzerland
 6-8 x/yr.; S; CA, BA, NA
- 393
Helvetica Physiologica et Pharmacologica Acta
 Benna Schwabe Verlag Steinentorstrasse 13, Basel 10, Switzerland
 Q; S; CA, CLML, AWM, BA, BIP, EM, NA, IM, IABS
- 394
Herba*
 Bloemsingel 10, Groningen, Netherlands
 I
- 395
Here's News
 Djakarta, Indonesia
 Ceased publication
- 396
Hindustan Antibiotics Bulletin
 Pimpri, Poona Dt, India
 Q; S, B; CA, BA
- 397
Hoshi Yakka Daigaku Kiyō
 (The Annual Report of the Hoshi College of Pharmacy)
 Hoshi College of Pharmacy, Ebara 2-chōme 320, Shinagawa-ku,
 Tokyo, Japan
 A; S; CA
- 398
Hospital Pharmacist
 Canadian Society of Hospital Pharmacists, 49 Lansdowne Ave.
 South, Galt, Ontario, Canada
 BM; S, B, N, O; CIHL
- 399
Hyoyakukai
 (Journal of Pharmaceutical Association of Hyogo)
 Hyogoken Yakuzaiishi Kyokai, 9-3 Chōme Tsukamoto-dari, Hyogoku,
 Kobe, Japan
 M; S; CA
- 400
Hypertenso-Vascular Progress
 Ciba Pharmaceutical Products, Inc., Summit, N.J., U.S.A.
 I; Ceased publication

I

- 401
**IPSF [International Pharmaceutical Students' Federation] News
 Bulletin**
 c/o Anton Damen, Spaargarenstraat 26, Oegstgeest, Leiden, The
 Netherlands
 S x/yr; N, O
- 402
I.V. Briefs
 Cutter Laboratories, 4th and Parker Sts., Berkeley 10, Calif., U.S.A.
 Q; A
- 403
Idaho State Pharmaceutical Association Confidential Newsletter
 James J. Lynch, Sec'y, 416 McCarty Bldg., Boise, Idaho, U.S.A.
 ca. 12/yr; N, O
- 404
Illinois Drug Progress
 See Drug Progress
- 405
Illinois Pharmacist
 Illinois Pharmaceutical Assoc., 222 W. Adams St., Chicago 6,
 Illinois, U.S.A.
 M; O, B, N
- 406
In Brief
 Pfizer and Company, Inc., Chemical Sales Division, Brooklyn, N.Y.,
 U.S.A.
 Q; A
- 407
In Pharamtion
 Cincinnati College of Pharmacy, Cincinnati, Ohio, U.S.A.
 Ceased publication
- 408
Indian Journal of Pharmacy
 Indian Pharmaceutical Assoc., Kalam Kutir, 213-219 Frere Road,
 Fort, Bombay 1, India
 M; O, A, N, S; CA, AWM, BA
- 409
Indian Journal of Physiology and Pharmacology
 Dr. H. I. Jhala, Director, Haffkine Institute, Bombay, 12, India
 Q; S; BA, IABS
- 410
Indian Pharmacist
 Pindars Ltd., 7 Lower Rawdon St., Calcutta, India
 Ceased publication
- 411
Indian Soap Journal
 P-11 Mission Row Extension, Calcutta 1, West Bengal, India
 M; S; CA
- 412
Indiana Pharmacist
 54 Monument Circle, Indianapolis 4, Ind., U.S.A.
 M; N, L, O, B
- 413
Industria Farmacéutica y Bioquímica
 Sociedad Uruguaya de Farmacia y Bioquímica Industriales; Justo
 Emilio Menes, Editor, Cuareim 1431, Montevideo, Uruguay
 A; S, N

ABBREVIATIONS - frequency of issue: A-annually; BM-bimonthly; ca.-approximately; F-fortnightly; 4x/yr., etc.-4 times a year; I-irregularly; M-monthly; Q-quarterly; SA-semi-annually; SM-semi-monthly; W-weekly
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 Items marked with an asterisk (*) have not been verified.

- 414
Industria Farmacéutica Venezolana
R. Rodríguez Navarro, Avenida Los Mangos, Quinta Cayupo, La Florida, Apartados de Correos 992 y 2282, Caracas, Venezuela
Ceased publication
- 415
Industria dei Farmaci
Associazione Nazionale Degli Industriali dei Prodotti Chimico-Farmaceutici, Roma, Italy
M; B
- 416
Industrial Chemist and Chemical Manufacturer
33 Tothill St., Westminster, London S.W. 1, U.K.
M; S; CA, BA
- 417
Información Farmacéutica
Ediciones Profesionales S.A., Hamburgo 31-4, Mexico 6, D.F., Mexico
M
- 418
Informaciones de Antibióticos
Antibióticos, S. A., Castellana 8, Madrid, Spain
I; Probably discontinued
- 419
Informaciones Terapéuticas Gramon
Ramon [Gerardo] y Compañía, Department Bibliografico, Buenos Aires, Argentina
Ceased publication
- 420
Informativo
Biblioteca, Facultad de Química y Farmacia, Universidad, Montevideo, Avenue Gral Flores 2124, Uruguay
Probably discontinued
- 421
International Antibiotics News Bulletin
Pfizer International Service Co., Medical Service Dept., 25 Broad St., New York 4, N.Y., U.S.A.
I; Probably discontinued
- 422
International Pharmaceutical Review
See Journal, Mondial de Pharmacie
- 423
Iowa Pharmacist
540 Des Moines Building, Des Moines 9, Iowa, U.S.A.
M; O, N, B
- 424
Irish Chemist and Druggist
11/13 Findlater Place, Dublin, Ireland
M; B, N
- 425
[Izdaniia] Berezotochskoi Ukrainskoi Opytnoi Stantsii Lekarstvennykh Rastenii*
(Ukrainian Medicinal Plants)
Berezotochskaia Ukrainskaia Opytnaia Stantsiia Lekarstvennykh Rastenii, Lubki, U.S.S.R.
- 426
Izvanredna Izdanja Farmakološkog Instituta u Zagrebu
(Extraordinary Editions of Institute of Pharmacology in Zagreb)
Farmakološkog Inst. u Zagrebu, Zagreb, Yugoslavia
Ceased publication. Printed in Croatia with abstracts in English.
- J**
- 427
Jahresbericht Physiologie und Experimentelle Pharmakologie
Berlin, Germany
Ceased publication
- 428
Jahresbericht der Pharmazie
Ceased publication
- 429
Japanese Journal of Pharmacognosy
See Shōyōkugaku Zasshi
- 430
Japanese Journal of Pharmacology
Faculty of Medicine, Kyoto University, Yoshida Konoecho, Sakyo-ku, Kyoto, Japan
SA; S; CA, CLML, IM, BA, IABS, BIP
- 431
Japanese Journal of Pharmacy and Chemistry
See Yakugaku Kenkyū
- 432
Jikken Chiryō
2-27 Doshō-machi, Higashi-ku, Osaka, Japan
M; S
- 433
Jornal dos Farmacêuticos
Title changed to Revista Portuguesa de Farmácia which See
- 434
Jornal dos Farmacêuticos do Ultramar*
P. O. Box 1535 or 344, Mozambique
- 435
Journal of the American Pharmaceutical Association
2215 Constitution Ave., N.W., Washington 7, D.C., U.S.A.
M; B, O, S; CA, AWM, BA, EM, NA, IM, CIHL
- 436
Journal of the American Pharmaceutical Association, Practical Pharmacy Edition
Title changed to Journal of the American Pharmaceutical Association which See
- 437
Journal of the American Pharmaceutical Association, Scientific Edition
Title changed to Journal of Pharmaceutical Sciences which See
- 438
Journal of Antibiotics, Series A
Japan Antibiotics Research Association, 264 Chojamaru, Kamiosaki, Shinagawa-ku, Tokyo, Japan
BM; S; CA, CLML, BA, IM, NA



- 439
Journal of Antibiotics, Series B
Japan Antibiotics Research Association, 264 Chojamaru, Kamiosaki,
Shinagawa-ku, Tokyo, Japan
BM; S; CA, BA, NA
- 440
Journal of Chemotherapy and Advanced Therapeutics
Merged into What's New which See
- 441
Journal of the Cleveland Academy of Pharmacy
See Cleveland Academy of Pharmacy Journal
- 442
Journal du Droguiste-herboriste
1, Place St-Etienne, Strasbourg, France
M
- 443
Journal of the Japan Pharmaceutical Association
See Nihon Yakuzaiishi Kyokai Zasshi
- 444
Journal of the Korean Pharmaceutical Association
Korean Pharmaceutical Association, 103 Kwan-Chul Dong, Chong-
No Ku, Seoul, Korea
M; S; B
- 445
Journal of Medicinal and Pharmaceutical Chemistry
See Journal of Medicinal Chemistry
- 446
Journal of Medicinal Chemistry
American Chemical Society, 1155 16th. N.W., Washington 6, D.C.,
U.S.A.
BM; S; CA, IM, IABS, BIP
- 447
Journal Mondial de Pharmacie
(International Pharmaceutical Review; World Journal of Pharmacy)
Fédération Internationale Pharmaceutique, Dr. J.H.M. Winters, General
Secretary, Alexanderstraat 11, s'Gravenhage, Netherlands;
W.K. Fitch, Editor, 17 Bloomsbury Sq. W.C. 1 London,
Q; O; B
- 448
Journal of the National Pharmaceutical Association
Howard University College of Pharmacy, Washington 1, D.C., U.S.A.
Q; B; S
- 449
Journal of New Drugs
600 Madison Avenue, New York 21, N.Y., U.S.A.
BM; S
- 450
Journal of the New Hampshire Pharmaceutical Association
Association Central Office, 17 Grove St., Peterborough, N.H., U.S.A.
M; O
- 451
Journal of the New Orleans College of Pharmacy
Loyola University, New Orleans 18, La., U.S.A.
Q; O; N
- 452
Journal of Pharmaceutical Association of Hyogo
See Hyoyakukai
- 453
Journal of the Pharmaceutical Association of Siam
See Journal of the Pharmaceutical Association of Thailand
- 454
Journal of the Pharmaceutical Association of Thailand
1/3 Saladaeng, Bangkok, Thailand
BM; S; CA; (in English and Thai)
- 455
Journal of Pharmaceutical Sciences
American Pharmaceutical Association, 2215 Constitution Ave., N.W.,
Washington 7, D.C., U.S.A.
M; S; CA, IM, BA, EM, NA
- 456
Journal of Pharmaceutical Sciences of the United Arab Republic
Edited by the Pharmaceutical Society, published and distributed by
the National Research Centre, Dokki, Cairo, Egypt. Editorial
Secretary, Dar El-Hikma, 42, Kasr El-Aini Street, Cairo, U.A.R
SA; S; CA
- 457
Journal of the Pharmaceutical Society of Japan
See Yakugaku Zasshi
- 458
Journal of the Pharmaceutical Society of Nigeria
A. A. Egboh, M.P.S.N., Editor, P.O. Box 456, Lagos, Nigeria
4x/yr., B, N, O
- 459
Journal de Pharmacie de Belgique
Rédaction et Administration, 11, Rue Archimède, Bruxelles 4,
Belgium
BM; S; CA, CLML, BA, EM, IM
- 460
Journal de Pharmacie et de Chimie
Merged with Bulletin des Sciences Pharmacologiques to form
Annales Pharmaceutiques Françaises
- 461
Journal of Pharmacology
Kyoto, Japan
Merged into Japanese Journal of Pharmacology which See
- 462
Journal of Pharmacology and Experimental Therapeutics
Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore 2,
Md., U.S.A.
M; S; BA, CA, IM, CLML, EM, AWM, BIP, IABS, NA
- 463
Journal of Pharmacy and Pharmacology
17 Bloomsbury Square, London W.C. 1, U.K.
M; S; BA, CA, CLML, IM, AWM, BIP, EM, IABS, NA
- 464
Journal of the Philippine Pharmaceutical Association
2100 Rizal Ave. Corner Tayabas, Manila, Philippines
M; S; B; O; CA, AWM
- 465
Journal of the Society of Cosmetic Chemists
404 Lathrop Rd., Grasse Pointe Farms 36, Mich., and Society of
Cosmetic Chemists of Great Britain, 54 Woodlands, London,
N.W. 11, U.K.
9x/yr.; S, N, O; CA

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items marked with an asterisk (*) have not been verified.



K

466

K.P.A. News

Kansas Pharmaceutical Association, 824 Kansas Avenue, Topeka, Kans., U.S.A.

M; N, O

467

Kagaku Ryoho

(Chemotherapy)

Kaken Kagaku Kabushiki Kaisha, 31 Kamifujimacho, Bunkyo-ku, Tokyo, Japan

I

468

Kagaku Ryoho Kenkyūsho Ihō

Kagaku Ryoho Kenkyūsho, 3-2, 418 Konodai-machi, Ichikawashi, Chiba-ken, Japan

A; S; CA

469

Kanazawa University, Faculty of Pharmacy, Report

Kanazawa, Japan

A; S; (Contents and summaries in English)

470

Kansas Pharmaceutical Association News

See K.P.A. News

471

Kentucky Pharmacist

335 W. Main St., Frankfort, Ky., U.S.A.

M; N, B, O

472

Khimiya i Meditsina

Vsesoyuznyi Nauchno-Issledovatel'skii Khimiko-Farmatsevticheskii Institut, Moskva, U.S.S.R.

—; S; BA

473

Kinki Daigaku Yakugakubu Kiyō

(Bulletin of the Faculty of Pharmacy, Kinki University.)

Faculty of Pharmacy, Kinki Univ., 321 Kowakaye, Fuse City, Osaka Prefecture, Japan

A; S; CA; (Printed in Japan. with Eng. summaries)

474

Kolektiv

Delovni Kolektiv Tovarne Farmaceutvskih in Kemicnih Proizvodov'lek, Ljubljana, Yugoslavia

M

475

Kolloid-Zeitschrift

Verlag von Dr. Dietrich Steinkopff, Holzhofallee 35, Darmstadt, Germany

M; S; CA

476

Kosmetik-Parfum-Drogen Rundschau für Industrie Handel und Gewerbe

Postfach 225, Innsbruck, Austria

I; S; CA

477

Krankenhaus-Apotheker

(Supplement to Deutsche Apotheker Zeitung)

Arbeitsgemeinschaft deutschen Krankenhausapotheker, Birkenwaldstrasse 44, Stuttgart, Germany

I; S; CA

478

Kumamoto Pharmaceutical Bulletin

Pharmaceutical Faculty, Univ. of Kumamoto, Ohemachi, Kumamoto, Japan

I; S, A; CA; (Mostly English)

479

Kyoto Yakka Daigaku Gakuhō

(Bulletin of the Kyoto College of Pharmacy)

Kyoto Yakka Daigaku, 5 Yamashina-Goryō Nakauchimachi, Higashi-yama-ku, Kyoto, Japan

A; S; CA

480

Kyushu Yakugakkai Kaiho*

(Journal of the Pharmaceutical Society of Kyushu)

c/o Kumamoto Daigaku Yakugakubu, Oe-machi, Kumamoto, Japan

A

L

481

Labo-Pharma

5 bis, rue de Berri, Paris 8e, France

M; S; B; CA

482

Lebanese Pharmaceutical Journal

Rédacteur en Chef, Order des Pharmaciens du Liban, B.P. 2807,

Beirut, Lebanon

SA; S; CA

483

Lederle Bulletin

Lederle Laboratories Division, American Cyanamid Co., New York, N.Y., U.S.A.

Suspended publication

484

Lekovite Sirovine, Zbornik Radova

Medicinska Velika Skola, Institut za Farmakognaziju, Visevradska 26, Beograd, Yugoslavia

I; Probably discontinued

485

Libre Pharmacie

Comité National des Pharmaciens, 4, Avenue Ruysdael, Paris 8e, France

M; B

486

Libres Thérapeutiques

Amicale des Anciens du Perron, 18 rue Mulet, Lyon, France

M

487

Literatur-Dienst

Deutsche Hoffmann-La Roche A. G., Grenzach 1. B., Germany

M



488
Lloydia
 The Lloyd Library and Museum and the American Society of Pharmacognosy; Lloydia, 309 West Court Street, Cincinnati 2, Ohio, U.S.A.

489
Louisiana Pharmacist
 Suite 208 Marine Bldg., 219 Carondelet Street, New Orleans 12, La., U.S.A.
 M; N, O

490
Lyon Pharmaceutique
 Association Amicale des Étudiants en Pharmacie, 3, rue des Halles, Trévoux, France
 M; S; CA

M

491
Malayan Pharmaceutical Journal
 C. F. Young, P.O. Box 664, Singapore, Malaya
 Ceased publication

492
M & B Laboratory Bulletin
 May and Baker, Ltd., Dagenham, England, U.K.
 I; S; CA

493
M & B Pharmaceutical Bulletin
 May and Baker, Ltd., Dagenham, England, U.K.
 M; N, O, H

494
M & C-O-Gram*
 Myttinger & Casselberry, Inc., Long Beach, Calif., U.S.A.

495
Manufacturing Chemist
 The Tower, Brook Green Road, Hammersmith London, W.6, U.K.
 M; S, N; CA

496
Martin's Chemists' and Druggists' Bulletin
 See Pharmaceutical Record

497
Maryland Pharmacist
 650 West Lombard St., Baltimore 1, Md., U.S.A.
 M; O, N, S

498
The Mask of Kappa Psi Pharmaceutical Fraternity
 Nicholas W. Fenney, Editor, 62 Broadfield Road, Hamden 17, Conn., U.S.A.
 Q; N, A

499
Massachusetts College of Pharmacy Bulletin
 179 Longwood Ave., Boston 15, Mass., U.S.A.
 Q; N

500
Materia Medica Nordmark
 Nordmark-Werke G.m.b.H., Hamburg, Germany
 M; S

501
Materia Therapeutica Dr. Kutiak
 Kutiak und Compagnie, Wien, III/40, Austria
 M

502
Materiae Vegetabiles
 See Qualitas Plantarum et Materiae Vegetabiles

503
Mødelelser fra Norsk Farmaceutisk Selskap
 Sandakervn 103, Oslo, Norway
 ca. M; S; CA, BA

504
La Médecine, la Chirurgie, la Pharmacie et leurs Services dans la Defense Nationale
 L'Union Nationale des Officiers de Reserve, 17, av. de l'Opera, Paris 1^{er}, France
 A; B, N, O, S

505
Médecine Tropicale
 École d'Application et Centre d'Instruction et de Recherche du Service de Santé des Troupes d'Outre Mer, Parc du Pharo, Marseille 7, France
 BM; S; CA

506
Medical Horizons
 Sandoz Pharmaceuticals, Route 10, Hanover, N.J., U.S.A.
 Ceased publication

507
Medical Letter on Drugs and Therapeutics
 Drug and Therapeutic Information, 136 E. 57th St., New York 22, N.Y., U.S.A.
 F; L, B

ABBREVIATIONS - frequency of issues: A-annually; BM-bimonthly; ca.-approximately; F-fortnightly; 4x/yr., etc.-4 times a year; I-irregularly; M-monthly; Q-quarterly; SA-semi-annually; SM-semi-monthly; W-weekly
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 where indexed or abstracted: AWM-Abstracts of World Medicine; BA-Biological Abstracts; BIP-Bulletin de l'Institut Pasteur; BPI-Business Periodicals Index; CA-Chemical Abstracts; CIHL-Cumulative Index of Hospital Literature; CLML-Current List of Medical Literature; EM-Excerpta Medica; IABS-International Abstracts of Biological Sciences; IM-Index Medicus; NA-Nutrition Abstracts
 items marked with an asterisk (*) have not been verified.

- 508
Medical Observer and Chemotherapy Review
 See Chemotherapy Review
- 509
Medical Products, A Survey of Therapeutic Agents for the Busy Physician
 Professional Surveys, Inc., P. O. Box 1040, Grand Central Station,
 New York 17, N.Y., U.S.A.
- M
- 510
Medical Trends
 Organon Inc., Orange, N.J., U.S.A.
 Q; S
- 511
Medicamenta
 Rios Rosas 37, Madrid, Spain
 SM; S; AWM, EM, NA
- 512
Medicamentos de Actualidad
 Apartado de Correos 540, Barcelona, Spain
 Q; L; S; (Card format)
- 513
Medicamundi
 NV Phillips' Gloeilampenfabrieken, Eindhoven, Netherlands
 Q; S; CLML, IM
- 514
Medicina, Cirugía, Farmacia
 Caixa Postal 2933, Rio de Janeiro, Argentina
 M; S; CLML, AWM, EM, CA, BA
- 515
Medicinal Chemistry: A Series of Reviews
 John Wiley & Sons, Inc., 440 4th Ave., New York 16, N.Y., U.S.A.
 I; S; BA
- 516
Meditsinskaya Promyshlennost' S.S.S.R.
 [Medical Supplies Industry of the U.S.S.R.]
 Gosudarstvennoe Izdatel'stvo Meditsinskoi Literatury, Moskva,
 U.S.S.R.
 M; S; CA, IM, BA; (Contents in English)
- 517
Medizin und Chemie
 Verlag Chemie, Weinheim Bergstr., Germany
 I; S; CA
- 518
Memoria de las Actividades*
 Facultad de Química y Farmacia, Universidad de Montevideo,
 Montevideo, Uruguay
 —; S
- 519
Memoria de la Asamblea General Farmaceutica de El Salvador*
 San Salvador, El Salvador
- 520
Merck Memo to Pharmaceutical Manufacturers
 Merck and Company, Inc., Rahway, N. J., U.S.A.
 ca. Q; S
- 521
Merck Report
 Ceased publication. Continued as Seminar Report which See
- 522
Merck Review*
 Merck and Company, Inc., Rahway, N.J., U.S.A.
- 523
**Merck's, E., Jahresbericht über Neuerungen auf den Gebieten der
 Pharmakotherapie und Pharmazie**
 Verlag Chemie G.m.b.H., Hauptstrasse 127, (17a) Weinheim/Bergstr.,
 Germany
 Ceased publication
- 524
México Farmacéutico
 Av. Uruguay No. 35, Mexico, D. F.
 F; N
- 525
Meyer Druggist
 Ceased publication
- 526
Michigan Drug Journal
 Detroit Retail Druggists Association, Kales Building, 76 West Adams,
 Detroit 26, Mich., U.S.A.
 M; N, B
- 527
Michigan Pharmacist
 Michigan State Pharmaceutical Association, 1812 Michigan National
 Tower, Lansing, Mich., U.S.A.
 M; B, N, O
- 528
Mid-Atlantic Apothecary
 376 Boylston St., Boston 16, Mass., U.S.A.
 M; N, B, S
- 529
Mid-Atlantic Pharmacist
 Title changed to Mid-Atlantic Apothecary which See
- 530
Midland Druggist
 Ceased publication
- 531
Midwestern Druggist
 Room C, 6550 Troost Ave., Kansas City 10, Mo., U.S.A.
 M; N
- 532
Military and Pharmaceutical Review
 See Vosjnosanitskii Preglad
- 533
Minerva Farmaceutica
 Ed. Minerva Medica, Corso Bramante 83, Torino 314, Italy
 M; N, H; CLML, IM, BA
- 534
Minnesota Pharmacist
 2388 University Ave., St. Paul 4, Minn., U.S.A.
 M; O, N, L
- 535
**Mises au Point de Chimie Analytique Pure et Appliquée et d'Analyse
 Bromatologique**
 Masson et Cie., Libraires de l'Acad. de Médecine, 120 Boulevard
 Saint-Germain, Paris 6e, France
 I; S; CA
- 536
Missouri Pharmacist
 601 Central Trust Building, Jefferson City, Mo., U.S.A.
 M; O, N, L
- 537
Mitteilungen der Deutschen Pharmazeutischen Gesellschaft
 (Supplement to Archiv der Pharmazie)
 Verlag Chemie, G.m.b.H., Hauptstrasse 127, (17a) Weinheim/
 Bergstr., Germany
 M; O; S; CLML, IM
- 538
**Mitteilungen aus dem Gebiete der Lebensmitteluntersuchung und
 Hygiene**
 Eidg. Gesundheitsamt, Bern, Switzerland
 I; S; IM
- 539
Mitteilungen
 International Society for the History of Pharmacy
 See Zur Geschichte der Pharmazie

540
Modern Terapii
 (The Modern Therapy)
 Modern Terapii-sha, 3-20 Doshomachi, Higashi-ku, Osaka, Japan
 Ceased publication

541
Modern Drugs
 Supplement to Modern Drug Encyclopedia
 Reuben H. Donnelley Corp., 466 Lexington Ave., New York 17, N.Y., U.S.A.
 M; L, A; CA, BA

542
Modern Pharmacy
 Parke, Davis & Co., Detroit 32, Mich., U.S.A.
 Ceased publication

543
Modern Treatment Year Book
 Bailliere, Tindall & Cox, Ltd., 7-8 Henrietta St., Covent Garden, London, U.K.
 A; S

544
Modern*
 Soci t  Parisienne d'Expansion Chimique, Istanbul, Turkey

545
Momento Farmac utica
 Sr. Affio Abdo. Francisco, Rua do M xico 45, grupo 1007, Rio de Janeiro, Argentina
 I; S; CA

546
Momento Sanitario
 Istituto Nazionale Assistenza Consulenza Farmaceutica, Milano, Italy
 I; N

547
Monatsbericht der Interkantonalen Kontrollstelle f r Heilmittel
 Interkantonaler Kontrollstelle f r Heilmittel, Erlachstrasse 8, Bern, Switzerland
 M; L, O

548
Moniteur des Pharmacies et des Laboratoires
 51, rue de Vivienne, Paris 2e, France
 BM; B

549
Monitor de la Farmacia y de la Terap utica
 Farmacia 6, Madrid, 4, Spain
 SM; S, N; CA, AWM, BA

550
Monographs on Therapy
 Ceased publication

551
Monthly Bulletin
 Di Cyan & Brown, 12 E. 41st St., New York 17, N.Y., U.S.A.
 M; B; CA

552
M nchener Medizinische Wochenschrift
 J. F. Lehmann, Paul Heysestr. 26, M nchen 15, Germany
 W; S; IM, BA

N

553
N.A.B.P. Bulletin
 77 West Washington St., Chicago 2, Ill., U.S.A.
 Q; N, O

554
N.A.R.D. Journal
 National Assoc. of Retail Druggists, 205 West Wacker Drive, Chicago 6, Ill., U.S.A.
 BM; M, O

555
N Y Cues
 New York Quinine and Chemical Works, 50 Church St., New York, N.Y., U.S.A.
 I; S

556
Naarden News*
 N. V. Chemische Fabriek "Naarden," Postbox 2, Bussum, Netherlands
 —; S

557
Nagoya Shiritsu Daigaku Yakugakubu Kiy 
 (Bulletin of the Nagoya City University Pharmaceutical School)
 Nagoya Shiritsu Daigaku Yakugakubu, 1 Hagiyama-cho, Mizuho-ku, Nagoya, Japan
 A; S; CA

558
National Capital Pharmacist
 Suite 5, United Bldg., 145 Kennedy St., N.W., Washington 11, D.C., U.S.A.
 M; O, N, L

559
National Drug Clerk
 Ceased publication

560
National Druggist
 Ceased publication

561
National Formulary Bulletin
 See Drug Standards

562
National Merchandiser
 442 St. Gabriel St., Montreal, P.Q., Canada
 9x/yr.; N, B

563
Naturwissenschaften
 Springer Verlag, Berlin W 35, W. Berlin, Germany
 SM; S; CA, BA

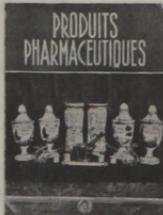
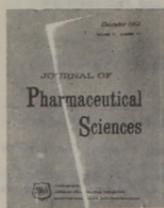
564
Nauchno-prakticheskaja Informatsija Tsentral'nogo Nauchnoissledovatel'skogo Aptechnogo Instituta*
 Moskva, U.S.S.R.

565
Naunyn-Schmiedebergs Archiv f r Experimentelle Pathologie und Pharmakologie
 See Archiv f r Experimentelle Pathologie und Pharmakologie

566
Nebraska Mortar and Pestle
 414 Federal Securities Building, Lincoln 8, Neb., U.S.A.
 M; O, N, L

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 items marked with an asterisk (*) have not been verified.

- 567
Nederlandse Chemische Industrie
 N. V. Uitgeverbedrijf Reflex, Mathenesserlaan 310, Rotterdam,
 Netherlands
 SM; S; CA
- 568
Neue Apotheken-Illustrierte
 Govt-Verlag G.m.b.H., Frankfurt/Main, Germany
 Ceased publication
- 569
Neue Arzneimittel und Spezialitäten
 Supplement to Deutsche Apotheker-Zeitung
 Stuttgart, Germany
 M; L; CA
- 570
New Drugs and Clinics
 See Shinyaku to Rinshō
- 571
New Hampshire Pharmaceutical Association Journal
 17 Grove St., Peterborough, N.H., U.S.A.
 M; N
- 572
New Jersey Journal of Pharmacy
 New Jersey Pharmaceutical Association, 118 West State St., Tren-
 ton 8, N.J., U.S.A.
 M; N; O
- 573
New Medical Matter
 250 W. 55th St., New York 19, N.Y., U.S.A.
 M; L; B
- 574
New Mexico Economic Poisons Control Office Report
 State University, University Park, N.M., U.S.A.
 A; S; O
- 575
New Preparations
 Ceased publication
- 576
New Products Index
 Ceased publication
- 577
New Remedies
 See American Druggist
- 578
New York State Pharmacist
 New York State Pharmaceutical Assoc., 117 East 69th St., New
 York 21, N.Y., U.S.A.
 M; N; O
- 579
Niedersächsische Apotheker
 Apothekerkammer Niedersachsen und der Niedersächsischen Apoth-
 ekerschaft, Verlag, Schwaier-Werbung, Marstallstraße 23, Hann-
 over, Germany
 M
- 580
Nihon Yakuho*
 Nihon Yakuho Sha, Tokyo, Japan
 BM; S
- 581
Nihon Yakurigaku Zasshi
 Nihon Yakuri Gakkai, c/o Kyoto Daigaku Igakubu Yakurigaku
 Kyoshitsu, Yoshida Konocho, Sakyo-ku, Kyoto, Japan
 6x/yr.; S; CA, AWM, IM
- 582
Nihon Yakuzaiishi Kyokai Zasshi
 (Journal of the Japanese Pharmaceutical Association)
 Nihon Yakuzaiishi Kyokai, Kojun Bldg., 6-4 Ginza, Chuo-ku, Tokyo,
 Japan
 M; S, NA
- 583
Nippon Daigaku Yakugaku Kenkyū Hōkoku
 (Pharmaceutical Bulletin of the Nippon University)
 Faculty of Pharmacy, Department of Technology, Nippon Univ., 1-8,
 Kanda Surugadai, Chiyoda-ku, Tokyo, Japan
 1; S; CA; (Printed in Japanese)
- 584
Nord Pharmaceutique
 77, rue Nationale, Lille, France
 M
- 585
Norges Apotekerforenings Tidsskrift
 Arbiensgate 3, Oslo, Norway
 BM; O; CA, BA
- 586
Norsk Farmaceutisk Tidsskrift
 L. Grensen 5, Oslo, Norway
 F; O, S
- 587
Northern California Drug News
 223 Underwood Bldg., 525 Market St., San Francisco 5, Calif.,
 U.S.A.
 Ceased publication
- 588
Northern Ohio Druggist
 1935 Euclid Ave., Cleveland 15, Ohio, U.S.A.
 M; N
- 589
Northwestern Druggist
 Bruce Publishing Co., 2642 University Ave., St. Paul 14, Minn.,
 U.S.A.
 M; B, N
- 590
**Notices of Judgment under the Federal Food, Drug, and Cosmetic
 Act, Drugs and Devices**
 U.S. Dept. of Health, Education, and Welfare, Food and Drug
 Administration, Washington, D.C., U.S.A.
 1; O



- 591
Notícias Farmacéuticas
 Coimbra, Portugal
 Title changed to Boletim da Escola de Farmacia which See
- 592
Noticiere de Antibioticos, Edicion International
 Issued also in English as International Antibiotics News Bulletin which See
- 593
Notiser om nya Laekemedel
 (Supplement to Farmaceutisk Revy, which See)
- 594
Notiziario Farmaceutico
 Aracne Editrice, Via Marco Aurelio, 6, Milano, Italy
 SM; L
- 595
Nouveautés Médicales
 Academia s.p.r.l., Bureau de Documentation Scientifique, Gand, Belgium
 M; A, L, S
- 596
Nouveautés Pharmaceutiques, Special issue of Le Pharmacien Rural
 Beaumont-de-Lomagne, France
 Ceased publication
- 597
Novye Lekarstvennye Rastenija Sibiri, ikh Lechebnye Preparaty i Primenenie*
 [Siberian Medicinal Plants]
 Mediko-Biologicheskii Institut, Zapadno-Sibirskii Filial Akademii Nauk, SSSR, Novosibirsk, U.S.S.R.
 —; S; CA

- 598
Nový Antibiotik Binan, ili Natrievaya Sol Usinovoý Kisloty, Akademiya Nauk S.S.S.R., Botanicheskii Institut imeni V. L. Komarova
 (The New Antibiotic Binan, or the Sodium Salt of Usinic Acid, Academy of Sciences of the U.S.S.R., Botanical Institute named for V. L. Komarov)
 Izdatel'stvo Akademii Nauk S.S.S.R., Moskva, Leningrad, U.S.S.R.
 —; S; CA
- 599
Ny Tid og Vi
 Fredensborg, Denmark
- 600
Nytt och Nyttigt
 Haesle-Tiko, Box 691, Gotteborg 6, Sweden
 4x/yr.

O

- 601
Od e Fa
 Directoria Academica da Faculdade de Odontologia e Farmácia da Universidade de Minas Gerais, Praça da Liberdade, Belo Horizonte, Minas Gerais, Brazil
- 602
Oesterreichische Apothekerzeitung
 Spitalgasse 31, Wien 9, Austria
 W; S, B, O; CA
- 603
Officine Occitane
 10, Rue du Sénéchal, Toulouse, France
 BM; B

- 604
Ohio Pharmaceutical Association Bulletin
 33 N. High St., Columbus, Ohio, U.S.A.
 I; N
- 605
Ohio Pharmacist
 Ohio State Pharmaceutical Assoc., 40 S. 3rd St., Columbus 15, Ohio, U.S.A.
 M; O, B, N
- 606
Oil, Paint and Drug Reporter
 30 Church St., New York 7, N.Y., U.S.A.
 W; N, O; CA, BPI
- 607
Oklahoma Pharmacist
 Box 510, Stillwater, Okla., U.S.A.
 M; N, O
- 608
Oregon Pharmacist
 709 Jackson Tower, Portland, Ore., U.S.A.
 M; O, B, N

- 609
Oregon State Pharmaceutical Association Bulletin
 709 Jackson Tower, Portland 5, Ore., U.S.A.
 I; N
- 610
Orogano
 Centro de Investigaciones Químico-Farmacéuticas, Universidad de Antioquia, Medellín, Colombia
 Q; Probably discontinued

- 611
Ormoni e Vitamine
 Istituto Ganassini, S.P.A., Milano, Italy
 I
- 612
Orvosi Szemle
 Medical Review
 Journal of the Tirgu Mures Medical and Pharmaceutical Institute and of the Tirgu Mures Branch of the RPR Society for Medical Science
 Orvosi Szemle, Universitatii Str. 38, Tirgu Mures, Rumania
 Q; S, A; CA

- 613
Osmosi
 Casa Editrice G. Tasso, Corso Porta Nuova, 48, Milan, Italy
 Ceased publication
- 614
Over the Counter with Georgia Pharmacists
 Georgia Pharmacy Alumni Assoc., University of Georgia, Athens, Ga., U.S.A.
 4x/yr.; N

P

- 615
P.A.R.D. Bulletin
 2017 Spring Garden St., Philadelphia 30, Pa., U.S.A.
 M; B, O, N

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 items marked with an asterisk (*) have not been verified.

PHARMACY PERIODICALS

- 616
PB
 Physician's Bulletin
 Lilly Research Laboratories, Indianapolis 6, Ind., U.S.A.
 Q; S
- 617
 P. I. Ph. I. Bulletin*
 Persatuan Importir Farmasi Indonesia, Djakarta, Indonesia
- 618
PMA Newsletter
 Pharmaceutical Manufacturers Assoc., 1411 K Street, N.W., Washington, D.C., U.S.A.
 W; N, O
- 619
P Rxchange
 American Association of Colleges of Pharmacy, 1507 M St., N.W., Washington 5, D.C., U.S.A.
 Ceased publication
- 620
Pacific Drug Review
 See Western Pharmacy
- 621
Pages de l'Ordre
 Ordre des Pharmaciens, 46 rue de Brest, Lyon, France
 Q; Probably discontinued
- 622
Pagine di Terapia
 Instituto Sieroterapico Milanese Serafino Belfanti in collaboration with the Comitato Culturale of the Federazione Ordini Farmacisti Italiani, Milano, Italy
 Ceased publication
- 623
Panacea
 Philadelphia College of Pharmacy and Science, Philadelphia, Pa., U.S.A.
 I; N
- 624
Parfumerie, Cosmétique, Savons
 28, rue Saint-Dominique, Paris 7e, France
 M; S; CA
- 625
Parfumerie Moderne
 See France et ses Parfums
- 626
Penick Cues
 Penick [S.B.] and Co., New York, N.Y., U.S.A.
 I; S
- 627
Pennsylvania Pharmacist
 Pennsylvania Pharmaceutical Assoc., 508 N. Third St., Harrisburg, Pa., U.S.A.
 M; N, O, B
- 628
Perfumery and Essential Oil Record
 33-34 Chiswell St., London E.C. 1, U.K.
 M; S; CA
- 629
Pestle and Mortar
 Apothecaries' Hall Dispensers' Assoc., London, U.K.
 Probably discontinued
- 630
Pharma Chemical Newsletter*
 Chemo Puro Manufacturing Corp., 150 Doremus Ave., Newark 5, N.J., U.S.A.
- 631
Pharmaceutical Advance
 Manley & James, Ltd., New York, N.Y., U.S.A.
 Ceased publication
- 632
Pharmaceutica
 Publication ceased and superseded by Annales Pharmaceutiques Belges
- 633
Pharmaceutica Acta Helveticae
 Schweizerische Apotheker-Verein, Sihlstrasse 37, Zürich, Switzerland
 M; S; CLML, CA, AWM, BA, EM, IM
- 634
Pharmaceutical Abstracts
 American Pharmaceutical Association
 Ceased publication
- 635
Pharmaceutical Abstracts
 College of Pharmacy, University of Texas, Austin 12, Texas, U.S.A.
 I; A
- 636
Pharmaceutical Archives
 Ceased publication
- 637
Pharmaceutical Bulletin
 Tokyo, Japan
 See Chemical and Pharmaceutical Bulletin
- 638
Pharmaceutical Bulletin of the Nippon University
 See Nippon Daigaku Yakugaku Kenkyō Hōkoku
- 639
Pharmaceutical Era
 Ceased publication
- 640
Pharmaceutical Journal
 Pharmaceutical Society of Great Britain, 17 Bloomsbury Square, London, W. C. 1, U.K.
 W; S, B, O; BA, CA, AWM, EM
- 641
Pharmaceutical Journal of New Zealand
 Pharmaceutical Society of New Zealand, 59 Cambridge Terrace, Wellington C.3, New Zealand
 M; B, O, S
- 642
Pharmaceutical Manufacturers Association Bulletin
 1411 K Street, N.W., Washington, D.C., U.S.A.
 —; N, O
- 643
Pharmaceutical Manufacturers Association Meeting Notices
 1411 K Street, N.W., Washington, D.C., U.S.A.
 I; O
- 644
Pharmaceutical Manufacturers Association Proceedings
 1411 K Street, N.W., Washington, D.C., U.S.A.
 A; B, S, O
- 645
Pharmaceutical Manufacturers Association Trade-Mark Bulletin
 1411 K Street, N.W., Washington, D.C., U.S.A.
 W; L, O
- 646
Pharmaceutical Manufacturers Association Yearbook
 1411 K St. N.W., Washington 5, D. C., U.S.A.
 A; S; CA; (Supersedes Proceedings, American Drug Manufacturers Assoc.)

- 647
Pharmaceutical News
 (Yakui Nippo)
 Kanda, Chiyoda-ku, Tokyo, Japan
 3x/W; N
- 648
Pharmaceutical Record
 Combined with American Druggist
- 649
Pharmaceutical Review
 Merged with Midland Druggist
- 650
Pharmaceutical Revue
 Roosevelt St. 76, Athinaï, Greece
 BM; B, O, S
- 651
The Pharmaceutical Weekly News
 Chong Po ku, Seoul, Korea
 W; N
- 652
Pharmaceutisch Tijdschrift voor België
 Hoogstraat 39, Brugge, Belgium
 BM; B, O; CA
- 653
Pharmaceutisch Weekblad
 Alexanderstraat 11, s'Gravenhage, Netherlands
 2 or 3x/M; S; CA, CLML, AWM, BA, IM
- 654
Pharmaceutische Rundschau, New York
 See Pharmaceutical Review
- 655
Pharmacist
 Builders Publications of India Ltd., Ionic, off Arthur Bunder Rd.,
 Colaba, Bombay 5, India
 M; S, N, B, A
- 656
Pharmacia
 Estonia
 Apparently discontinued
- 657
Pharmacie Française
 L'Association Amicale des Etudiants en Pharmacie de France, 85,
 Boulevard Saint-Michel, Paris 5, France
 Q; N, B
- 658
Pharmacie Industrielle
 49 Rue Picot, Paris 6e, France
 Q; B
- 659
Pharmacie-Produits Pharmaceutiques
 Ceased publication. Followed by Produits et Problèmes Pharmaceutiques
- 660
Pharmacien
 MacLellan-Hunter Ltée., 481, Ave. University, Toronto, Ontario,
 Canada
 M; B
- 661
Pharmacien en Afrique Française*
 Conseil Régional de l'Ordre, 2, Rue Auber, Algeria
- 662
Pharmacien Biologiste
 Bulletin de l'Association des Pharmaciens Directeurs de Laboratoires d'Analyses
 Centre de Documentation de L'APDIIA, 4, Ave. de l'Observatoire,
 Paris 6e, France
 3 or 4 x/yr; S; CA
- 663
Pharmacien de France
 13 rue Ballu, Paris 9e, France
 BM; S, B, O; CA, BA
- 664
Pharmacien Rural
 Association de Pharmacie Rurale, E. Lefort, Pres., Friville-Escarbotin,
 Paris, France
 Q; B, O; CA
- 665
Pharmacist
 Chicago College of Pharmacy
 Ceased publication; merged into Western Druggist
- 666
Pharmacist and Chemical Record
 See Pharmacist (Chicago College of Pharmacy)
- 667
Pharmacist and Chemist
 See Pharmacist (Chicago College of Pharmacy)
- 668
Pharmacological Reviews
 Williams & Wilkins Co., 428 East Preston St., Baltimore 2, Md.,
 U.S.A.
 Q; S; CA, CLML, AWM, BA, BIP, IM, EM, AIBS
- 669
Pharmacologist
 American Society for Pharmacology and Experimental Therapeutics,
 Dr. Karl H. Beyer, Sec'y, Merck Sharp & Dohme Research Labs.,
 West Point, Pa., U.S.A.
 SA; S
- 670
Pharmacology and Toxicology
 (Translation of Farmakologiya i Toksikologiya)
 Consultants Bureau, Inc., 227 West 17th St., New York 11, N.Y.,
 U.S.A.
- 671
Pharmacy Advertiser
 Upjohn Co., 301 Henrietta St., Kalamazoo 99, Mich., U.S.A.
 Ceased publication
- 672
Pharmacy Digest
 25 Oxford St., London W.1, U.K.
 M; S, B, N
- 673
Pharmacy in History
 American Institute of the History of Pharmacy, Madison, Wis., U.S.A.
 Q; H
- 674
Pharmacy International
 Johnson Export Publishing Co., Inc., 386 Fourth Ave., New York 16,
 N.Y., U.S.A.
 M; B, S, N

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 items marked with an asterisk (*) have not been verified.

675

Pharmacy Management

Pharmaceutical Business Analysis Service, 27 Park View, Hatch
End, Pinner, Middlesex, England, U.K.
Q; B

676

Pharmacy News, Ludhiana

Amar Dass Bhatia, Kwalita Printers, Ludhiana, India
M; B, S

677

Pharmacy Newsletter

Norwich Pharmacol Co., 17 Eaton Ave., Norwich, N.Y., U.S.A.
Ceased publication

678

Pharmacy Pakistan

Pharmaceutical Society of Pakistan, 20, Aziz Chambers, Near City
Courts, Karachi, Pakistan
M; S; CA

679

Pharmaceutika Nea*

11 Themistocleous St., Athinal, Greece

680

Pharmaquick

Ames Co., Inc., Elkhart, Ind., U.S.A.
I; A, B

681

Pharmazeutische Industrie

Editio Cantor, Aulendorf i. Württemberg, Germany
M; S, B, A; CA

682

Pharmazeutische Monatshefte

Ceased publication

683

Pharmazeutische Post

Ceased publication

684

Pharmazeutische Praxis

(Supplement to Die Pharmazie)

VEB Verlag Volk und Gesundheit, Neue Grünstrasse 18, Berlin C2,
Germany
M; S; CA, IM, BA

685

Pharmazeutische Presse

Ceased publication

686

Pharmazeutische Rundschau

Norddeutscher Fachzeitschriften-Verlag W. Schamberger & Co.,
GmbH., Deelbøge 5-7, Hamburg 20, Germany
M

687

Pharmazeutische Weltzeitung

(German title of Journal Mondial de Pharmacie)

688

Pharmazeutische Zeitung

Friedrich-Ebert-Anlage 42, Frankfurt a. Main, Germany
W; O, N; CA

689

Pharmazeutische Zentrallhalle für Deutschland

Theodor Steinkopff, Loschwitzerstrasse 32, Dresden A 53, Germany
M; O, S, A; CA, CLML, NA, IM

690

Pharmazie

Verlag Volk und Gesundheit, Neue Grünstrasse 18, Berlin C2,
Germany
M; S; CA, CLML, AWM, BA, EM, IM

691

PharmIndex

P.O. Box 1029, Federal Station, Portland, Ore., U.S.A.
SM; L, S

692

Pill Box*

Erie County Pharmaceutical Assoc., 25 Foster Hall, 3435 Main St.,
Buffalo 14, N.Y., U.S.A.
—; N, O

693

Pinheiros Farmacêutica

Rua Teodoro Samapio 1860, San Paulo, Brazil
BM

694

Planta Medica

Hippokrates Verlag, Morikestrasse 17, Stuttgart 5, Germany
SM; S; CA, BA

695

Poznańskie Towarzystwo Przyjaciół Nauk. Wydział Lekarski. Prace Komisji Farmaceutycznej

Sew. Mielżyńskiego 27-29, Poznań, Poland
I; S; CA

696

Practical Druggist

Merged into American Professional Pharmacist, 1935

697

Practical Pharmacy

See Yakyoku

698

Prairie Druggist

National Drugs Ltd., P.O. Box 758, Winnipeg, Manitoba, Canada
11x/yr.; N

699

Praktikantenbriefe

(Supplement to Deutsche Apotheker-Zeitung)
Postfach 40, Stuttgart 1, Germany
M; S

700

Pratik Farmakolog

Sigli, Halaskargazi Caddesi, No. 322/3, Istanbul, Turkey
M

701

Prescriber

P.O. Box 864, Benjamin Franklin Sta., Washington, D.C., U.S.A.
Ceased publication

702

Prescribers' Journal

Dr. J. L. Hunt, Editor; Chesham House, 136 Regent Street, London,
W. 1, U.K.
BM; B, S

703

Prescription News

Joint Committee on Inter-Professional Relations, Monmouth County
Medical Society, Ocean County Medical Society, Monmouth-
Ocean Co. Pharmaceutical Society, Asbury Park, N.J., U.S.A.
M; Probably discontinued

704

Prescriptionist

P.O. Box 864, Benjamin Franklin Sta., Washington, D.C., U.S.A.
Ceased publication

705

Präbium Est, Pharmazeutische Informationen für den Arzt

Wissenschaft und Werbung Prinz-Eugen-Strasse 12, Freiburg i-B.,
Germany
BM

- 706
Probatum Est, Pharmazeutische Informationen für den Arzt in Oesterreich
 Verlag Dr. Karl Switel, Margareturgel, Wien 5, Austria
 BM
- 707
Probleme de Farmacodinamie Nespecifica
 Ceased publication. Merged into Studii și Cercetări de Fiziologie
- 708
Problèmes et Techniques, Revue Technique de Conditionnement, de Publicité et d'Organisation Générale des Laboratoires Pharmaceutiques
 27, rue de l'Echiginer, Paris 10, France
 7x/yr.
- 709
Proceedings (American College of Apothecaries) of Program, Annual Convention and Mid-Year Conference
 American College of Apothecaries, Hamilton Court Hotel, 39th and Chestnut Sts., Philadelphia 4, Pa., U.S.A.
 SA; S, B
- 710
Proceedings, American Drug Manufacturers' Association
 Merged with Proceedings, American Pharmaceutical Manufacturers' Association to form Yearbook, Pharmaceutical Manufacturers Association
- 711
Proceedings, American Pharmaceutical Manufacturers Association
 Merged with Proceedings, American Drug Manufacturers' Association to form Yearbook, Pharmaceutical Manufacturers Association
- 712
Proceedings of the Minnesota State Pharmaceutical Association
 2388 University Ave., St. Paul, Minn., U.S.A.
 A; O
- 713
Proceedings, National Association of Boards of Pharmacy
 77 W. Washington St., Chicago 22, Ill., U.S.A.
 A; O
- 714
Proceedings, National Wholesale Druggists Association
 60 E. 42nd St., New York 17, N.Y., U.S.A.
 A; O, B
- 715
Proceedings of the Pharmaceutical Society of Egypt, Scientific Edition
 (June and December issues of Egyptian Pharmaceutical Bulletin . . .)
- 716
Proceedings of the Scientific Section of the Toilet Goods Association
 Rockefeller Center, New York 20, N.Y., U.S.A.
 SA; S; CA
- 717
Proceedings of the Western Pharmacology Society
 Dept. of Pharmacology, University of Washington School of Medicine, Seattle, Wash., U.S.A.
 A; S; BA
- 718
Proceedings of the Wisconsin Pharmacists' Institute
 Wisconsin University, School of Pharmacy, Madison, Wis., U.S.A.
 Suspended publication
- 719
Produits et Problèmes Pharmaceutiques
 Éditions des Presses Documentaires, 28, Rue Saint-Dominique, Paris 7e, France
 M; S, A, L; CA, CLML, AWM, BIP, IM
- 720
Progress des Recherches Pharmaceutiques
 See Fortschritte der Arzneimittelforschung
- 721
Progresos de Terapéutica Clínica
 Mayor 4, Madrid, Spain
 Q; S; BA; Probably discontinued
- 722
Progress in Drug Research
 See Fortschritte der Arzneimittelforschung
- 723
Progress in Medicinal Chemistry
 Butterworth and Co., Ltd., 88 Kingsway, London W.C. 2, U.K.
 I; S
- 724
Progress Notes
 William S. Merrell Research Laboratories, Amity Rd., Reading, Cincinnati 15, Ohio, U.S.A.
 Ceased publication
- 725
Psychopharmacologia
 Springer Verlag, Reichspietscher 20, Berlin W 35, Germany
 M; S; CA, BA
- 726
Psychopharmacology Service Center Bulletin
 Psychopharmacology Service Center, National Inst. of Mental Health, Bethesda 14, Md., U.S.A.
 I; S, N
- 727
Public Pharmacist
 Alchemist Publications, 25 Oxford St., London W.1, U.K.
 BM; O, S
- 728
Publicación Trimestral*
 Centro de Investigaciones Químico-Farmacéuticas, Universidad de Antioquia, Apartado 2173, Medellín, Colombia
 Q
- 729
Publicações Farmacéuticas
 Rua Libero Badaró 119, 6º Andar, Caixa Postal 8095, San Paulo, Brazil
 Q; S; CA, BA
- 730
Pulse of Pharmacy
 Wveth Labs., Division of American Home Products Corp., Box 8299, Philadelphia 1, Pa., U.S.A.
 3 or 4x/yr.; S
- 731
Purdue Pharmacist
 School of Pharmacy, Purdue University, Lafayette, Ind., U.S.A.
 4x/yr.; N, B, S; (Student publication)

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 type of periodical: A-abstracts or reviews; B-business or professional; D-documentation; H-historical; L-lists of new drugs; N-news; O-official or legal; S-scientific
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 items marked with an asterisk (*) have not been verified.



Q

732
Q.S.
Florida University, College of Pharmacy, Gainesville, Fla., U.S.A.
I; N; (Student publication)

733
Qualitas Plantarum et Materiae Vegetabiles
Dr. W. Junk, van Stolkweg 13, 's-Gravenhage, Netherlands
I; S; CA, BA, NA

734
Quarterly Bulletin, Association of Food & Drug Officials of the United States
2411 North Charles St., Baltimore, Md., U.S.A.
Q; O, S; CA

735
Quarterly Journal of Crude Drug Research
Dr. E. F. Steinmetz, 347 Keizersgracht, Amsterdam, Netherlands
Q; S; BA

736
Quarterly Journal of Pharmacy and Pharmacology
Title changed to Journal of Pharmacy and Pharmacology, which See

737
Química y Farmacia
Avda. Agraciada 1464, Piso 14, Montevideo, Uruguay
BM; N; CA

738
Quindicinale Italiano d'Informazione Medicofarmaceutica
Supplement to l'Informatore Farmaceutica Italiano, which See

R

739
Raphael
Bolletina della Unione Cattolica Farmacisti c/o Postale N 1/31376,
Roma, Italy
I; Probably discontinued

740
Ratgeber für Kranke und Gesunde*
Gebr. Storck G.m.b.H. Oberhausen/Rhld., Germany
SM

741
Razorback Pharmacist
University of Arkansas, Fayetteville, Ark., U.S.A.
Ceased publication

742
Rebotica
(publication of the Almeria College of Pharmacy)
Plaza del Monte, 10, Almeria, Spain
6x/yr.; B, N, O, S

743
Recent Advances in Medicine
Upjohn Co., Kalamazoo, Mich., U.S.A.
Ceased publication

744
Receptarius*
Beetslaan 216, Rijswijk, Netherlands

745
Recueil des Travaux Chimiques des Pays-Bas et de la Belgique
D. B. Centen's Uitg. Mij. N. V., 1^{er} Wateringplantsoen 8, Amsterdam, Netherlands
M; S; BA, CA

746
Referata Antibiotica
Nederlandsche Gist- en Spiritusfabriek, Wateringseweg 1, Delft, Netherlands
SA; Probably discontinued

747
Regensburger Therapeutische Blaetter
Jso-Werk, K. G., Schliessfach 134, Regensburg, Germany
I

748
Report of Rho Chi
Pharmacy Honor Society
William L. Blockstein, Secretary-Treasurer, College of Pharmacy,
Wayne State University, Detroit 2, Mich., U.S.A.
A; N, O

749
Reports of the Pharmaceutical Society of Egypt
Dar El-Hikma, 42, Sharia Kasr. El-Aini St., Cairo, U.A.R.
Q; S, B; CA

750
Research in the Service of Medicine
G. D. Searle and Co., P.O. Box 5110, Chicago 80, Ill., U.S.A.
I; S

751
Research Today
Ceased publication

752
Retail Chemist
18/20 York Buildings, Adelphi, London W. C. 2, U.K.
M; N

753
Retort
University of Colorado, College of Pharmacy, Boulder, Colo., U.S.A.
Ceased publication

754
Revista de la Asociación Farmacéutica Femenina
Asociación Farmacéutica Femenina, El Salvador
10x/yr; B

755
Revista Brasileira de Farmácia
Rua das Andradas 96, Rio de Janeiro, Brazil
M; S; CA

756
Revista del Centro Estudiantes de Farmacia y Bioquímica
Córdoba 2077, Buenos Aires, Argentina
I; S; CA

- 757
 Revista del Colegio de Farmacéuticos del Distrito Federal
 Apartado Postal 224, Caracas, Venezuela
 BM; S
- 758
 Revista del Colegio de Farmacéuticos Nacionales
 María Elena Ladeveze, Rioja 1059, Rosario, Argentina
 I; S; CA
- 759
 Revista de la Facultad de Ciencias Químicas
 Calle 115, esq. 47, La Plata, Argentina
 A; S; CA, AWM
- 760
 Revista de la Facultad de Farmacia by Bioquímica
 Universidad Nacional Mayor de San Marcos, Apartado 1760,
 Lima, Peru
 SA; B; CA, BA, NA
- 761
 Revista de la Facultad de Farmacia de la Universidad Central de
 Venezuela
 Dr. Anibal Mestre Fuenmayor, Director; Facultad de Farmacia,
 Ciudad Universitaria, Caracas, Venezuela
 I; ca SA; S, N, O, B
- 762
 Revista da Faculdade de Farmácia de Santa Maria
 Universidade do Rio Grande do Sul, Rua Floriano Peixoto 118,
 Santa Maria, Rio Grande do Sul, Brazil
 I; Probably discontinued
- 763
 No entry.
- 764
 Revista de la Facultad de Farmacia de la Universidad de Los Andes
 Dr. Hernan Hernandez R., Facultad de Farmacia, Av. D. Tulio
 Febres C., Mérida, Venezuela
 Q; S, N, B, O; CA
- 765
 Revista Farmacéutica
 Asociación Farmacéutica y Bioquímica Argentina, Bartolomé Mitre
 2041, Buenos Aires, Argentina
 BM; S; CA, AWM, EM
- 766
 Revista Farmacéutica
 Costa Rica
 Title changed to Farmacia which See
- 767
 Revista Farmacéutica
 Caixa Postal No. 116, Gôa, India Portuguesa
 Q; Probably discontinued
- 768
 Revista Farmacéutica da Bahia
 Rua Marquês de Caravelas 50, Ap. 6, Salvador, Bahia, Brazil
 Q; S; CA
- 769
 Revista Farmacéutica de Cuba
 Colegio Farmacéutico Nacional, Avenida de Antonio Maceo 307,
 La Habana, Cuba
 M; O, N; CA, BA
- 770
 Revista Farmaceutica Lombarda
 Associazione Chimica Farmaceutica Lombarda fra Proprietari di
 Farmacia, Milano, Italy
 M; N, B
- 771
 Revista Farmacéutica de Ouro Preto
 Ouro Preto, Minas Gerais, Brazil
 Probably discontinued
- 772
 Revista Farmacéutica Peruana
 Apartado 1609, Avda, Nicaragua, Lima, Peru
 M; B, N; CA
- 773
 Revista Farmacéutica de Puerto Rico
 Apartado 206, Roosevelt, Puerto Rico
 M; B, N, O
- 774
 Revista de Farmácia e Odontologia
 Caixa Postal 45, Niterói, Rio de Janeiro, Brazil
 M; S, B; CA
- 775
 Revista de Farmacologia y Medicina Experimental
 Lima, Peru
 Ceased publication
- 776
 Revista de la Federación Nacional de Químicos Farmacéuticos*
 José Dias 382, Lima Peru
- 777
 Revista della Federazione Ordini Faracisti Italiani
 See Il Farmacista
- 778
 Revista da Flora Medicinal
 Rua Sete de Setembro, Rio de Janeiro, Brazil
 I; S; CA, BA
- 779
 Revista de la Industria Bioquímico-Farmacéutica*
 Av. Lib. Gral. San Martín 7774, Buenos Aires, Argentina
- 780
 Revista do Instituto de Antibióticos, Universidade do Recife
 Rua Dom Bosco No. 1002, Recife, Brazil
 I; S; CA, BA
- 781
 Revista Médico-Farmacéutica Dominicana
 Apartado de Correo 1242, Ciudad Trujillo, Dominican Republic
 I; Probably discontinued
- 782
 Revista Portuguesa de Farmácia
 Rua da Sociedade Farmacéutica 18, Lisboa, Portugal
 Q; S; CA
- 783
 Revista de Química e Farmácia do Rio de Janeiro
 Caixa Postal 385, Rio de Janeiro, Brazil
 M; S; CA
- 784
 Revista Químico Farmacéutica
 Colegio de Farmacéuticos del Estado Zulia, Maracaibo, Venezuela
 Q; B

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- 785
 Revista Químico-Farmacéutica
 Chile
 See Colegio Farmacéutico
- 786
 Revista de la Real Academia de Farmacia de Barcelona
 Probably discontinued
- 787
 Revista "Roche" de Farmácia
 Rio de Janeiro
 Ceased publication
- 788
 Revista de la Sanidad Militar Argentina
 Pozos 2045, Buenos Aires, Argentina
 Q; S; CLML, CA, AWM
- 789
 Revista de la Union Farmacéutica de El Salvador
 San Salvador, El Salvador
 Q; O, S, B; Probably discontinued
- 790
 Revue d'Histoire de la Pharmacie
 Société d'Histoire de la Pharmacie, Faculté de Pharmacie, 4, Ave.
 de l'Observatoire, Paris 6e, France
 Q; H
- 791
 Revue de Médecine Navale (Metropole et Outremer)
 Merged into Revue des Corps de Santé des Armées, Terre, Mer, Air
 et du Corps Vétérinaire
- 792
 Revue Médicale du Moyen-Orient
 169, rue de Rennes, Paris 6e, France
 BM; S; CA, CLML, AWM, BA, EM
- 793
 Revue Médicale et Scientifique
 Association des Médecins et Pharmaciens, American University,
 Beyrouth, Lebanon
 M; S; BA
- 794
 Revue de Médecine et de Pharmacie
 371 Chaussée de Wavre, Bruxelles 4, Belgium
 Ceased publication
- 795
 Revue Pharmaceutique Libanaise
 B.P. 2807, Beirut, Lebanon
 SA
- 796
 Revue de Pharmacie; Pratique et Professionnelle
 1178 Phillips Place, Montreal, P.Q., Canada
 M; O, N
- 797
 Revue du Service de Santé Militaire
 Title changed to Bulletin d'Information du Service de Santé
 Militaire which See
- 798
 Rexall Reporter
 Rexall Drug Co., 8480 Beverly Blvd., Los Angeles 54, Cal., U.S.A.
 M; N
- 799
 Rezeptvorschläge für Ärzte
 Supplement to Oesterreichische Arztezeitung
- 800
 Rhône-Alps*
 2, rue Pierre Duchot, Grenoble, France
 M
- 801
 Riechstoffe und Aromen
 Gerhard R. Barsch-Fachverlag, Devrienstr. 12A, Hannover, West
 Germany
 M; S; CA
- 802
 Rivista Italiana delle Essenze e Profumi
 Via San Vincenzo 38, Milano, Italy
 M; S, B; CA, BA
- 803
 Rivista della Unione Nazionale Industria Farmaceutica
 Via Fatebenefratelli 10, Milano, Italy
 BM; B, S, N
- 804
 Roche Apotheker-Dienst
 Title changed to Apotheker-Dienst Roche which See
- 805
 Rocky Mountain Druggist
 Western Drug Publications, Wilda Building, 1441 Welton St.,
 Denver 2, Colo., U.S.A.
 M; B, N
- 806
 Roznik Farmaceutyczny
 Farmaceutyczny Instytut Wydawniczy, Warszawa, Poland
 Ceased publication
- 807
 Rokeach Ha-ivri
 (The Hebrew Pharmacist)
 Pharmaceutical Association of Israel, Tel-Aviv, Israel
 See Harokeach Haivri
- 808
 Rope News
 Publication of Rho Pi Phi
 Irwin H. Kauffman, Bala Cynwyd, Pa., U.S.A.
- 809
 Rutgers Apothecary
 Rutgers University College of Pharmacy, 1 Lincoln Ave., Newark 4,
 N.J., U.S.A.
 SA; N, B
- 810
 Rutgers Pharmacy Extension News*
 Rutgers University College of Pharmacy, Pharmaceutical Extension
 Service, 1 Lincoln Ave., Newark, N.J., U.S.A.



5

- 811
Saint Louis Druggist
See National Druggist
- 812
St. Louis Pharmaceutical Association [News]
5101 Hampton, St. Louis 9, Mo., U.S.A.
M; N
- 813
Sandoz Bulletin
Distributed in Switzerland, not available in U.S.
Sandoz Pharmaceuticals, Inc., 61 Van Dam St., New York 13, N.Y., U.S.A.
Ceased publication
- 814
Sandoz News
23 Great Castle St., London, W.1, U.K.
3x/yr.; N
- 815
Sankyo Yakuhō
(Sankyo Medical News)
Sankyo Kabushiki Kaisha (Sankyo Co.) 2-1 Ginza, Chuo-ku, Tokyo, Japan
M; Probably discontinued
- 816
Sarsa Farmaceutico
Rue do Rocha 155, Rio de Janeiro, Brazil
M
- 817
Sbornik Nauchnykh Trudov Leningradskogo Khimiko-Farmatsevticheskogo Instituta
(Collection of Scientific Works of the Leningrad Chemical-Pharmaceutical Institute)
Izдание Leningradskogo Khimiko-Farmatsevticheskogo Instituta, Leningrad, U.S.S.R.
I; S; CA
- 818
Schimmel Briefs
601 W. 26th St., New York, N.Y., U.S.A.
M; S
- 819
School of Pharmacy Bulletin
Extension Services in Pharmacy, University of Wisconsin Extension Division, Madison 6, Wis., U.S.A.
3x/yr.; B, N, S
- 820
Schweizerische Apotheker-Zeitung
(Journal Suisse de Pharmacie. Giornale Svizzero di Farmacia)
Schweizerische Apotheker-Vereine, Sihlstrasse 37, Zürich 1, Switzerland
W; O; B; CA, AWM, BA
- 821
Scientia Pharmaceutica
Oesterreichische Apotheker-Drucksorten- und Zeitschriften Verlag G.m.b.H., Spitalgasse 31, Wien 9, Austria
Q; S; CA, AWM, BA
- 822
Scientific Communications
Reprinted articles
Koninklijk Pharmaceutische Fabrieken v/h Brocades-Sieman en Pharmacia, Amsterdam, Netherlands
A; S
- 823
Scope
The Upjohn Company, Kalamazoo, Mich., U.S.A.
Ceased publication
- 824
Scottish Chemist
240 Albert Drive, Pollokshields, Glasgow, W.1, U.K.
M; L
- 825
Script
Buffalo University, School of Pharmacy, Buffalo 14, N.Y., U.S.A.
BM; SA
- 826
Seifen - Oele - Fette - Wachse
Verlag für Chemische Industrie H. Ziolkowski, Augsburg, Beethovenstr. 16, Germany
BW; S; CA
- 827
Seiyakugaku Zasshi
(Japanese Journal of Pharmacognosy)
Title changed to Shōyakugaku Zasshi which See 828
- 828
Seleções Científicas de Medicina e Farmácia
Rio de Janeiro
Rio de Janeiro, Brazil
Ceased publication
- 829
Seminar Report
Merck Sharp & Dohme, West Point, Pa., U.S.A.
Publication suspended
- 830
Seoul University Journal. Medicine and Pharmacy Series
Research Committee, Seoul National University, Graduate School, 31 Dong Sung Dong, Chong No. Gu, Seoul, Republic of Korea
- 831
Shin'yaku to Chiryō
(New Remedies and Therapy)
Yamanouchi Seiyaku Kabushiki Kaisha, 2-5 Nihonbashi Hancho, Chuo-ku, Tokyo, Japan
BM; Probably discontinued
- 832
Shinyoku to Rinshō
(New Drugs and Clinic)
3-30, Nakamura-cho, Nerimaku, Tokyo, Japan
M; S; CA
- 833
Shōyakugaku Zasshi
Japanese Journal of Pharmacognosy
The Pharmacognostical Society of Japan, Pharmaceutical Inst., Univ. Tokyo, Hongo, Tokyo, Japan
SA; S; CA; (Printed in Japanese with English summaries)
- 834
Sicilia Farmaceutica
Federazione Farmacisti Siciliani, Via Giordano Bruno 15, Catania, Italy
M; N
- 835
Slovenský Lékarník
Bratislava, Czechoslovakia
Ceased publication

ABBREVIATIONS - frequency of issue: A-annually; BM-bimonthly; ca.-approximately; F-fortnightly; 4x/yr., etc.-4 times a year; I-irregularly; M-monthly; Q-quarterly; SA-semi-annually; SM-semi-monthly; W-weekly
type of periodical: A-abstracts or reviews; B-business or professional; D-documentation; H-historical; L-lists of new drugs; N-news; O-official or legal; S-scientific
where indexed or abstracted: AWM-Abstracts of World Medicine; BA-Biological Abstracts; BIP-Bulletin de l'Institut Pasteur; BPI-Business Periodicals Index; CA-Chemical Abstracts; CIHL-Cumulative Index of Hospital Literature; CLML-Current List of Medical Literature; EM-Excerpta Medica; IABS-International Abstracts of Biological Sciences; IM-Index Medicus; NA-Nutrition Abstracts
items marked with an asterisk (*) have not been verified.



836

Soap and Chemical Specialties

MacNair-Darland Co., Inc., 254 W. 31st St., New York 1, N.Y., U.S.A.

M; S, B; CA, BA, CIHL

837

Soap, Perfumery and Cosmetics

United Trade Press Ltd., 9 Gough Sq., Fleet St., London, E. C. 4, U.K.

M; S, N; CA

838

South African Pharmaceutical Journal

(Suid-Afrikaanse Tydskrif vir Apteekwese)

80 Jorissen St., Braamfontein, P.O. Box 6290, Johannesburg, South Africa

M; S, B, O, N

839

South African Retail Chemist

205, Star Building, 33 Waterkant St., Cape Town, South Africa

M; B, N

840

South Dakota Journal of Medicine and Pharmacy

300 1st National Bank Bldg., Sioux Falls, S. D., U.S.A.

M; S, B; CA, CLML, IM, CIHL

841

South Jersey Pharmacist

528 Stevens St., Camden, N.J., U.S.A.

M; N

842

Southeastern Drug Journal

423 Grand Theatre Bldg., Atlanta 3, Ga., U.S.A.

M; B, O, N

843

Southern Pharmaceutical Journal

Mack Associates, P.O. Box 7123, Kansas City 13, Mo., U.S.A.

M; B; CA

844

Southwestern Drug Trade News

Southwestern Drug Corp., 1108 Jackson St., Dallas, Tex., U.S.A.

Publication suspended

845

No Official Title

Madrid, Spain, Consejo Superior de Investigaciones Cientificas, Instituto José Celestino Mutis [Publication]*

846

Spatula

Merged into Practical Druggist, 1926

847

Specialita Farmaceutiche

Ed. Minerva Medica, Corso Bramante 83-85, Torino 314, Italy

A

848

Spectrum

Pfizer Spectrum, 235 East 42nd St., New York 17, N.Y., U.S.A.

BM; S

849

Squibb Abstract Bulletin

Ceased publication

850

Srpsko Farmaceutsko Društvo, Sekcija Javnih Apoteka, Bilten

Terazije 12, Post fah. 664, Beograd, Yugoslavia

M; Probably discontinued

851

Studii si Cercetări de Fiziologie

București, Rumania

Q; Probably discontinued

852

Subsidia Medica

Verlag Brüder Hollinek, Steingasse 25, Wien III, Austria

BM; S, B; AWM, EM

853

Süddeutsche Apotheker-Zeitung

See Deutsche Apotheker-Zeitung

854

Suomen Apteekkarilehti

Finlands Apotekartidning

P. Roobertink, 14C, Helsinki, Finland

SM; S, L

855

Svensk Farmaceutisk Tidskrift

Upplandsgatan 6A, Stockholm, Sweden

36x/yr.; O, A, S; CA, CLML, IM, BA

T

856

Tableau des Pharmaciens Inscrits au Conseil de l'Ordre des Pharmaciens de la Province de Namur

Metter, Belgium

A; Probably discontinued

857

Takeda Yakuho

(Takeda Medical News)

Takeda Yakuho Kogyo Kabushiki Kaisha, 2-27 Doshomachi, Higashi-ku, Osaka, Japan

M

858

Technique Pharmaceutique, Bulletin de la Société de Technique Pharmaceutique

Société d'Éditions Pharmaceutiques, 19, rue Jacob, Paris 16, France

M; D; CA

- 859
Temple Apothecary
Temple University, School of Pharmacy, 3223 N. Broad St., Philadelphia 40, Pa., U.S.A.
Q; N
- 860
Terapéutica*
La Habana, Cuba
- 861
Teriaca
Genova, Italy
BM; N
- 862
Texas Journal of Pharmacy
College of Pharm., Univ. of Texas, Austin, Tex., U.S.A.
Q; S, B, N
- 863
Texas Pharmacy
Texas Pharmaceutical Assoc., 265 Texas St., Fort Worth, Tex., U.S.A.
M; N, B, O
- 864
Therapia
Hoffmann-La Roche, Nutley 10, N.J., U.S.A.
Ceased publication
- 865
Therapeutikon. Rivista de Medicina Generale e Farmacoterapia
Casella Postale 559, Pisa, Italy
BM; Ceased publication
- 866
Therapeutische Umschau und Medizinische Bibliographie
Hans Huber, Marktgasse 9, Bern 7, Switzerland
M
- 867
Therapia Hungarica
(Hungarian Medical Journal)
Budapest 62, P.O.B. 152, Hungary
M; S; CLML, CA, IM; (In English)
- 868
Thérapie
G. Doin & Co., 8 Place de l'Odéon, Paris 6e, France
BM; S; CA, CLML, AWM, EM, IM
- 869
Therapie der Gegenwart
Urban & Schwarzenberg, Strasse des 17 Juni 112, Berlin-Charlottenburg 2, Germany
M; S; CLML, AWM, EM
- 870
Therapiewoche
Verlag G. Braun, Karl Friedrichstr. 14, Karlsruhe, Baden, Germany
M; S; CA
- 871
Theriaca
Dansk Farmaci Historisk Selskab, Copenhagen, Denmark
I; H
- 872
Tidskrift for den Norske Lægeforening
Jørgen H. Berner, Drammensveien 44, Oslo, Norway
SM; S; CA, CLML, AWM, BA, EM, IM
- 873
Tile and Till
Eli Lilly & Co., Indianapolis 6, Ind., U.S.A.
BM; B
- 874
Today's Medicine & Pharmacy*
No. 70, Sec. 1, Hanko St., Taipei, Taiwan
- 875
Toxicology and Applied Pharmacology
Academic Press, Inc., 111 Fifth Ave., New York 3, N.Y., U.S.A.
BM; S; CA, IM, BA, IABS, BIP
- 876
Toyaku Ko Kaiho
(Bulletin of the Pharmaceutical Manufacturers Association of Tokyo)
Tokyo Iyokuhin Kagyo Kyokai, 6 Kanda Kanakura-cho, Chiyoda-ku, Tokyo, Japan
BM
- 877
Trabajos del Jardín Botánico*
Facultad de Farmacia, Universidad de Santiago, Santiago de Compostela, Spain
- 878
Travaux des Laboratoires de Matière Médicale et de Pharmacie Galénique
Université de Paris, Paris, France
A; S
- 879
Travaux de la Société de Pharmacie de Montpellier
Faculté de Pharmacie, C.C. Postal 432-06, Montpellier, France
4x/yr.; S; CA
- 880
Triangel. Sandoz-Zeitschrift für Medizinische Wissenschaft
Sandoz A.G., Deutschherrnstr. 15, Nürnberg, Germany
Q
- 881
Tribuna Farmacéutica
Praca Tiradentes 530, Caixa Postal 145, Curitiba, Parana, Brazil
M; S; B; CA, BA
- 882
Tribuna Farmacéutica
Colegio Farmacéutico y Bioquímico de Tucumán, Tucumán, Argentina
Probably discontinued
- 883
Trudy Vsesoiuznogo Obshchestva Fiziologov Biokhnikov i Farmakologov Akademiyi Nauk S.S.S.R., Moskva, U.S.S.R.
I; S; CA, CLML, IM, BA
- 884
Trudy Vsesoyuznogo Nauchno-Issledovatel'skogo Instituta Antibiotikov Gosudarstvennoe Izdatel'stvo Meditsinskoi Literatury, Moskva, U.S.S.R.
Ceased publication
- 885
Türk Eczacıları Birliği Mecmuası
Cagaloglu Ortaklar Hani 26, Istanbul, Turkey
Q; S, B, N

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items marked with an asterisk (*) have not been verified.

U

- 886
Ugeskrift for Læger
 Kristianlagade 12, Copenhagen, Denmark
 W; S; CA, CLML, AWM, BA, EM, IM
- 887
Ukazatel' Novykh Lekarsvennykh Preparatov
 Moskva, U.S.S.R.
 I; Probably discontinued
- 888
Union Pharmaceutique
 21, rue des Nonnains-d'Hyère, Paris 6, France
 M; Probably discontinued
- 889
United Nations Dept. of Social Affairs, Assay, Characteristics, Composition, and Origin of Opium
 United Nations Secretariat, New York, N.Y., U.S.A.
 I; S
- 890
University of Arizona Pharmacist
 Tucson, Ariz., U.S.A.
 SA; N
- 891
University of California Publications in Pharmacology
 University of California Press, Berkeley 4, Calif., U.S.A.
 I; S; CLML, AWM, BIP, CA, EM, IM, BA
- 892
University of Colorado Studies, Series in Chemistry and Pharmacy
 Boulder, Colo., U.S.A.
 I; S; CA, BA
- 893
Unlisted Drugs
 Unlisted Drugs Committee of the Pharmaceutical Section, Science-Technology Division, Special Libraries Assoc., 31 E. 10th St., New York 3, N. Y., Winifred Sewell, Editor.
 M; L
- 894
Unpublished Abstracts of Articles on Pharmaceutical Subjects
 See Pharmaceutical Abstracts
- 895
Utah Pharmaceutical Association Bulletin
 1086 E. 21st St., South, Salt Lake City 6, Utah, U.S.A.
 M

V

- 896
Veneficus
 Universitetets Farmasøytiske Institutt, Blindern, Oslo, Norway
 10x/yr.; S, B
- 897
Vesters Archiv für Geschichte des Deutschen Apothekenwesens mit Pharmazeutisch-naturwissenschaftlicher Bibliothek*
 Nixhütter Weg 67, Neuss a. Rh., Germany
 —; H
- 898
Virginia Pharmacist
 Virginia Pharmaceutical Assoc., 1105 East Clay St., Richmond 19, Va., U.S.A.
 M; O, L, N
- 899
Voice of the Pharmacist
 American College of Apothecaries, Hamilton Court (39th and Chestnut Streets), Philadelphia 4, Pa., U.S.A.
 W (40x/yr.); N, O; CA
- 900
Voprosy Meditsinskoj Khimii
 (Problems of Medical Chemistry)
 Gosundarstvennoe Izdatel'stvo Meditsinskoj Literatury, Moskva, U.S.S.R.
 BM; S; CA, CLML, BA
- 901
Vojnosanitetski Pregled*
 (Military and Pharmaceutical Review)
 Sanitetska Uprava Drzavnog Sekretarijata za Poslove Narodne Odrbane, 15 Nemanjina br., Belgrade, Yugoslavia
 M; S, O
- 902
Voz Farmacéutica
 Laboratorios del Pino Avenida Petit Thouars 1777, Lima, Peru
 M; Probably discontinued
- 903
Voz de la Farmacia
 Centro Proprietarios de Farmacias del Uruguay, Agraciada 2345, Montevideo, Uruguay
 M; Probably discontinued

W

- 904
Wallerstein Laboratories Communications
 180 Madison Ave., New York 16, N.Y., U.S.A.
 Q; S, A; CA, BA
- 905
Washington-Alaska Pharmacist
 Official Journal of the Washington State and Alaska Pharmaceutical Assocs.
 6639 White-Henry-Stuart Bldg., Seattle 1, Wash., U.S.A.
 M; N
- 906
Washington State University Pharmacist
 School of Pharmacy, Washington State College, Pullman, Wash., U.S.A.
 A; N, B
- 907
Wayne Pharmic
 College of Pharm., Wayne State Univ., Detroit 2, Mich., U.S.A.
 SA, N, O
- 908
Weekly Drug News and Prices Current
 Ceased publication
- 909
Weekly Pharmacy Reports - The "Green Sheet"
 1152 National Press Bldg., Washington 4, D.C., U.S.A.
 W; N, O
- 910
Wegweiser in Gesunden und Kranken Tagen*
 Apotheken-Werbeverlag Apotheker H. Schneider & Co., G.m.b.H., Köln, Germany
 SM
- 911
West African Pharmacist
 Kumasi College of Technology, Kumasi, Ghana
 4x/yr., S
- 912
West Coast Druggist
 Butterworth Publications, 1606 North Highland Ave., Hollywood 28, Calif., U.S.A.
 M; N
- 913
West Virginia Pharmacist
 P.O. Box 119, Oak Hill, West Virginia, U.S.A.
 M; N, L, O

- 914
Western Druggist
 1606 W. Broadway, Vancouver 9, B.C., Canada
 M; N
- 915
Western Druggist
 Combined with *Bulletin of Pharmacy to form Drug Bulletin in 1928*
- 916
Western Pharmacy
formerly Pacific Drug Review
 Beeler Publishing Corp., 1280 Columbus Ave., San Francisco 11, Calif., U.S.A.
 M; O, N, B
- 917
What's New
 Abbott Laboratories, North Chicago, Ill., U.S.A.
 6x/yr.; S; CA
- 918
What's New in Food and Drug Research
 Food and Drug Research Labs., Inc., Maurice Ave. at 58th St., Maspeth 78, New York, N.Y., U.S.A.
 Q; N, C
- 919
Wholesale Drug Salesman
 405 East Superior St., Duluth 2, Minn., U.S.A.
 M; B
- 920
Wiener Medizinische Wochenschrift
 Brüder Hollinek, Steingasse 25, Wien 3/40, Austria
 Ceased publication
- 921
Wisconsin Pharmacist
 Wisconsin Pharmaceutical Assoc., 202 Price Pl., Madison 5, Wis., U.S.A.
 M; O
- 922
Wisconsin University, School of Pharmacy, Contributions from the History of Pharmacy Department
 Madison, Wis., U.S.A.
 I; H
- X-Y
- 923
Yakkyaku
(Journal of Practical Pharmacy)
 Nanzandoo Co., Ltd., 36 Tatsuoka-cho Bunkyo-ku, Tokyo, Japan
 M; S; CA
- 924
Yakkyoku no Ryoiki
(Domain of Dispensary)
 Wako Shoin, 1-62 Kanda Jinbo-cho, Chiyoda-ku, Tokyo, Japan
 M; S; CA
- 925
Yakugaku Kenkyu
(Japanese Journal of Pharmacy and Chemistry)
 Yakugyo Oraisha, 1-26, Kikawa Nishino-machi, Higashi Yodogawa-ku, Osaka, Japan
 M; S; CA, BA
- 926
Yakugaku Saikin no Shimpo
(Recent Advances in Pharmaceutical Chemistry)
 Ishiyaku Shuppan Publishing Co., P. O. Box 8, Hongo Post Office, Tokyo, Japan
 I; S; CA
- 927
Yakugaku Zasshi
(Journal of the Pharmaceutical Society of Japan)
 University of Tokyo, Nanzando, 36 Tatsuoka-cho, Hongo, Bunkyo-ku, Tokyo, Japan
 M; S; CA
- 928
Yakuji Nippo
 See *Pharmaceutical News*
- 929
Yao Ho Hua Hsueh*
(Chemistry and Pharmacy)
 Chemistry and Pharmacy Monthly Co., Shanghai, China
 —; S
- 930
Yao Hsin Chi K'An*
(Journal of Pharmacy)
 Student Association of National College of Pharmacy, Nanking, China
- 931
Yao Hsueh Hsueh-Pao
(Acta Pharmaceutica Sinica. Formerly Chung Kuo Yao Hsueh Tsa Chih, Journal of the Pharmaceutical Association)
 Guozhi Shudian, Importers and Exporters of Books and Periodicals, 38 Souchou Hutung, Peking, China
 SA; S; CA; Printed in Chinese with Eng. or Russ. summaries
- 932
Yao Hsueh Wen Chai*
(Pharmacological Abstracts)
 Southwest Health Publication Publishing Co., China
- 933
Year Book of Drug Therapy
 Year Book Publishers, Inc., 200 East Illinois St., Chicago 11, Ill., U.S.A.
 A; A
- Z
- 934
Zeitschrift für Aerosol-Forschung und -Therapie
 Deutsches Kuratorium für Aerosol-Forschung, Friedrich-Karl Schattauer-Verlag, Schlossstrasse 20, Stuttgart, Germany
 6x/yr.; S; CA
- 935
Zur Geschichte der Pharmazie, Geschichtsbeilage der Deutschen Apotheker-Zeitung
 Riemannstrasse 90, Eutin, Germany
 I; H

ABBREVIATIONS - frequency of issue: A-annually; BM-bimonthly; ca.-approximately; F-fortnightly; 4x/yr., etc.-4 times a year; I-irregularly; M-monthly; Q-quarterly; SA-semi-annually; SM-semi-monthly; W-weekly
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- W-X-Y-Z**
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*For a comprehensive list of U.S. pharmacy journals of early years, see "The Pharmaceutical Journals of the United States," by Minnie Meyer, *J. Am. Pharm. Assoc.* 22:424 (May) 1933.

APPENDIX D

COMPOSITE LIST OF JOURNALS OF PHARMACEUTICAL INTEREST

This compilation is made from three lists of journals, each selected on the basis of pharmaceutical information content. It is included to suggest the variety of periodicals that contain such data.

The individual lists from which it was compiled are as follows:

- F—List of Periodicals for Pharmaceutical Abstracts, 1960. This list was selected by members of the International Pharmaceutical Federation Commission of Pharmaceutical Abstracts (see appendix A9) for coverage in their proposed Pharmaceutical Abstracts. That publication would have covered the fields of "drug formulation, development, stability, sterilization, pharmaceutical legislation, education and economics."
- P—Journals to be covered by proposed Pharmaceutical Abstract Publication, 1955. This list was prepared by a committee of the Pharmaceutical Section of the Special Libraries Association. It represents the journals that were thought at the time of the proposal to be those basic to interests of the pharmaceutical industry.
- U—List of journals covered by Unlisted Drugs Contributors, 1962. This list has evolved over the 14 years of production of Unlisted Drugs by the Pharmaceutical Section of the Special Libraries Association. It consists of those journals which experience has indicated will be most likely to yield information on new drugs. While this list represents periodicals that are checked regularly, contributors frequently submit "unlisted drugs" they note in other sources.

Although journals that have changed titles are collected under their latest names, those that have ceased publication are retained on the composite list as an indication of the subject scope of the three original lists.

COMPOSITE LIST OF JOURNALS OF PHARMACEUTICAL INTEREST

A

- U Abstracts of Japanese Medicine
- F Acta Belgica de Arte Medicinali et Pharmaceutica Militari
- U Acta Chemica Scandinavica
- P U Acta Endocrinologica
- P U Acta Medica Scandinavica
- F Acta Pharmaceutica Hungarica
- P Acta Pharmaceutica Internationalia
- F Acta Pharmaceutica Jugoslavica
- F P Acta Pharmacologica et Toxicologica
- F Acta Physiologica et Pharmacologica Neerlandica
- F Acta Phytotherapeutica
- F Acta Poloniae Pharmaceutica
- U Acta Tropica
- F Actas y Trabajos; Congreso Internacional de Antibioticos y Quimioterapicos
- F Actualités Pharmacologiques
- F Advances in Clinical Chemistry
- U Aerospace Medicine
- F Aerztliches Laboratorium
- U Agricultural Chemicals
- F Aktuelle Arzneitherapie

- U Alberta Medical Bulletin
 F Alcaloides
 F Alchemist
 F American Association of Colleges of Pharmacy, Teachers' Seminars
 F U American Druggist
 P U American Heart Journal
 P American Journal of Digestive Diseases
 P U American Journal of Diseases of Children
 P U American Journal of Gastroenterology
 F P U American Journal of Hospital Pharmacy
 U American Journal of Hygiene
 P American Journal of the Medical Sciences
 P American Journal of Medicine
 P American Journal of Obstetrics and Gynecology
 U American Journal of Ophthalmology
 F American Journal of Pharmaceutical Education
 F P American Journal of Pharmacy
 P American Journal of Physiology
 U American Journal of Proctology
 U American Journal of Psychiatry
 P American Journal of Public Health and the Nation's Health
 U American Journal of Roentgenology, Radium Therapy and Nuclear Medicine
 P U American Journal of Surgery
 P U American Journal of Tropical Medicine and Hygiene
 F P American Perfumer
 P U American Practitioner
 F P U American Professional Pharmacist
 P American Review of Respiratory Diseases
 U Anaesthesia
 U Anaesthetist
 F Anais Azevedos
 F Anais da Faculdade de Farmácia e Odontologia do Estado do Rio de Janeiro
 F Anais da Faculdade de Farmácia e Odontologia da Universidade de São Paulo
 F Anais da Faculdade de Farmácia do Pôrto
 F Anais da Faculdade Nacional de Farmácia
 F Anais da Faculdade de Odontologia e Farmácia da Universidade de Minas Gerais
 F Anais de Farmácia e Química de São Paulo
 F Anales de la Asociación de Química y Farmacia del Uruguay
 F Anales de Bromatología
 F Anales de la Facultad de Farmacia y Bioquímica
 F Anales de la Facultad de Química y Farmacia
 F Anales de Farmacia y Bioquímica
 F Anales de Farmacia Hospitalaria
 F Anales del Instituto de Farmacología Española
 F Anales de la Real Academia de Farmacia
 U Analyst
 P Analytical Chemistry
 U Anesthesia and Analgesia; Current Researches
 P U Anesthesiology
 U Angiology
 U Annales de Chimie

- P U Annales de l'Institut Pasteur
 U Annales de Parasitologie Humaine et Comparée
 F Annales Pharmaceutiques Belges
 F P U Annales Pharmaceutiques Françaises
 F Annali di Chimica
 F Annali della Università di Ferrara; Sezione II. Farmacologia e Terapia
 P Annals of Allergy
 P Annals of Internal Medicine
 U Annals of Otolaryngology, Rhinology and Laryngology
 U Annals of Surgery
 U Annals of Tropical Medicine and Parasitology
 F P Antibiotic Medicine and Clinical Therapy
 F Antibiotica et Chemotherapia
 F Antibiotics (New York); English Edition of Antibiotiki (Moskva)
 F Antibiotics Annual
 F P U Antibiotics and Chemotherapy
 F Antibiotiki
 F Anuario da Faculdade de Farmácia e Odontologia de Natal
 P U Applied Microbiology
 F Archiv for Pharmaci og Chemi
 F Archiv der Pharmazie und Berichte der Deutschen Pharmazeutischen Gesellschaft
 P U Archives of Biochemistry and Biophysics
 P U Archives of Dermatology
 U Archives of Diseases in Childhood
 P Archives of Environmental Health
 U Archives of General Psychiatry
 U Archives de l'Institut Pasteur d'Algérie
 U Archives de l'Institut Pasteur du Maroc
 P U Archives of Internal Medicine
 F P U Archives Internationales de Pharmacodynamie et de Thérapie
 U Archives Internationales de Physiologie et de Biochimie
 U Archives des Maladies Professionnelles de Médecine du Travail et de Sécurité Sociale
 U Archives of Neurology
 P Archives of Otolaryngology
 F Archivio Italiano di Scienze Farmacologiche
 F Archivos Farmacéuticos Bagó
 F Archivos de Farmacia y Bioquímica del Tucumán
 F Archivos del Instituto de Farmacología Experimental
 F Arhiv za Farmaciju
 F Arquivos do Instituto de Farmacologia e Terapêutica Experimental
 F P U Arzneimittel-Forschung
 F Australasian Journal of Pharmacy
 P Australian Journal of Experimental Biology and Medical Science
 U Australian Veterinary Journal

B

- P Bacteriological Reviews
 F Berichte über die Gesamte Physiologie und Experimentelle Pharmakologie
 P U Biochemical Journal
 F U Biochemical Pharmacology
 F P Biochemische Zeitschrift
 P Biochimica et Biophysica Acta
 U Biological Reviews of the Cambridge Philosophical Society

- P Biometrics
 F Biuletyn Instytutu Róslin Lecznicych
 P U Blood; Journal of Hematology
 U BMQ; Boston Medical Quarterly
 F Boletim da Associação Farmacêutica de Pernambuco
 F Boletín del Colegio de Farmacéuticos y Químicos de Guatemala
 U Boletín de la Oficina Sanitaria Panamericana
 F U Bollettino Chimico Farmaceutico
 P Bristol Digest
 U British Heart Journal
 U British Journal of Anaesthesia
 U British Journal of Clinical Practice
 U British Journal of Industrial Medicine
 F P British Journal of Pharmacology and Chemotherapy
 U British Journal of Radiology
 P U British Medical Journal
 U Bulletin of the Academy of Medicine (Toronto)
 F Bulletin du Cercle Benelux d'Histoire de la Pharmacie
 F Bulletin de la Fédération Française des Amicales de Pharmaciens de Réserve
 U Bulletin of Hygiene (London)
 F Bulletin d'Information, Fédération Pharmaceutique Méditerranéenne
 U Bulletin de l'Institut Pasteur (Paris)
 P U Bulletin of the Johns Hopkins Hospital
 F Bulletin of Narcotics, United Nations, Department of Social Affairs
 P U Bulletin of the New York Academy of Medicine
 F Bulletin de l'Ordre National des Pharmaciens
 F Bulletin of the Parenteral Drug Association
 F Bulletin of the Pharmaceutical Manufacturers Association
 F Bulletin of Pharmaceutical Research Institute
 F Bulletin; Pharmacognosy Laboratory, India Ministry of Health
 F U Bulletin der Schweizerischen Akademie der Medizinischen Wissenschaften
 U Bulletin des Sociétés Chimiques Belges
 P U Bulletin de la Société Chimique de France
 U Bulletin de la Société de Pathologie Exotique et de Ses Filiales
 F Bulletin de la Société de Pharmacie de Bordeaux
 F Bulletin de la Société de Pharmacie de Lille
 F Bulletin de la Société de Pharmacie de Marseille
 F Bulletin de la Société de Pharmacie de Nancy
 F Bulletin de la Société de Pharmacie de Strasbourg
 F Bulletin de la Société des Sciences Médicales du Grand-Duché de Luxembourg
 U Bulletin of the World Health Organization
 F Bulletins et Mémoires de la Faculté de Médecine et de Pharmacie de Dakar
 F Burma Pharmaceutical Journal

C

- P California Medicine
 U Canadian Doctor
 P U Canadian Journal of Biochemistry and Physiology
 U Canadian Journal of Chemistry
 U Canadian Journal of Comparative Medicine and Veterinary Science
 U Canadian Journal of Medical Technology
 U Canadian Journal of Microbiology
 U Canadian Journal of Public Health

- P Canadian Medical Association Journal
 F U Canadian Pharmaceutical Journal
 P U Cancer
 P U Cancer Research
 F U Central African Pharmaceutical Journal
 F Československá Farmacie
 U Chain Store Age
 U Chemical Abstracts
 U Chemical Age
 F Chemical Age of India
 P U Chemical and Engineering News
 F U Chemical and Pharmaceutical Bulletin (Tokyo)
 P Chemical Reviews
 U Chemical Week
 F Chemisch Weekblad
 P Chemische Berichte
 F Chemische en Pharmaceutische Techniek
 F Chemische Rundschau
 P Chemist-Analyst
 F U Chemist and Druggist
 U Chemistry in Canada
 F P U Chemistry and Industry
 F Chimia
 F Chimica e l'Industria
 F Ciba Monographs
 P Ciba Symposia
 F Ciba Therapeutic Index
 P U Circulation
 P U Circulation Research
 U Cleveland Clinic Quarterly
 F Clinica Chimica Acta
 F Clinical Chemistry
 F U Clinical Pharmacology and Therapeutics
 U Clinical Radiology
 U Clinical Research
 F Colegio Farmacéutico
 F Collana di Monografie di Storia della Farmacia
 F Collectanea Pharmaceutica Suecica
 U Collection of Czechoslovak Chemical Communications
 U Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences
 F Comptes Rendus; International Congress of Hospital Pharmacists
 P U Comptes Rendus des Séances de la Société de Biologie et de Ses Filiales
 F Contributions from the Danish Pharmacopoeia Commission
 F Contributions from the History of Pharmacy Department of the School
 of Pharmacy, University of Wisconsin
 F U Correio do Mundo Farmacéutico
 F Current Iodine Literature
 F Current Researches in Anesthesia and Analgesia
 U Current Therapeutic Research, Clinical and Experimental
- D
- F U Dansk Tidsskrift for Farmaci
 F Dansk Tidsskrift for Farmaci, Supplementum
 P Dermatologica
 F Deutsche Apotheker

- F Deutsche Apotheker-Zeitung
 P U Diabetes
 U Diabetic Journal
 U Diagnosi
 U Discussions of the Faraday Society
 P U Diseases of the Chest
 P U Diseases of the Nervous System
 F Dissertation Abstracts
 F Dissertationes Pharmaceuticae
 F Drogistenzeitung
 U Drug and Allied Industries
 F P U Drug and Cosmetic Industry
 U Drug Merchandising
 F Drug Research Reports
 F P Drug Standards
 F Drug Topics
 F U Drug Trade News
 F U Drugs Made in Germany
- E
- F East African Pharmaceutical Journal
 F Eastern Pharmacist
 F Egyptian Pharmaceutical Bulletin
 U Endeavour
 P U Endocrinology
 U Enzymologia
 F Ergebnisse der Physiologie, Biologischen Chemie und Experimentellen
 Pharmakologie
 F Escuela de Farmacia
 F Excerpta Medica; Section II: Physiology, Biochemistry and Pharma-
 cology
 P U Experientia
 F Experientia Sandoz
 U Experimental Parasitology
 U Eye, Ear, Nose and Throat Monthly
- F
- F Faculté
 F Farmaceutický Obzor
 U Farmacéutico
 F Farmacéutico-Bioquímico
 F Farmaceutisk Tidende
 F Farmaceutisk Notisblad
 F Farmaceutski Glasnik
 F U Farmaceutsk Revy
 F Farmaceutski Vestnik
 F Farmaci e Farmacie
 F Farmacia (Bucuresti)
 F Farmacia (San Jose)
 F Farmácia do Brasil
 F Farmacia Nueva
 F Farmacia Nuova
 F Farmacia y Química
 F Farmacija
 F Farmacista

- F Farmacja Polska
 F Farmaco; Edizione Pratica
 F Farmaco; Edizione Scientifica
 F Farmacognosia; Anales del Instituto José Celestino Mutis
 F Farmacología
 F Farmacoterapia Actual
 F Farmakolog
 F Farmakologija i Toksikologija
 F Farmakoterapi
 F Farmatsiia
 P U Federation Proceedings
 U Feed Bag
 F Fette und Seifen
 F Fette, Seifen, Anstrichmittel Verbunden mit der Zeitschrift die Ernährungsindustrie
 F Fitoterapia
 F Food, Drug, Cosmetic Law Journal
 F Food, Drug, Cosmetic Law Reporter
 F Fortschritte der Chemotherapie
 F France Pharmacie
- G
- U Gaceta Médica
 F Galenica Acta
 P U Gastroenterology
 F Gazeta de Farmácia (Rio de Janeiro)
 F Gazeta de Farmácia (Lisboa)
 F Gazette des Hôpitaux Civils et Militaires
 F Gekhan Shionogi
 P U Geriatrics
 F Gifu Yakka Daigaku Kiyō
 F Giornale Italiano di Chemioterapia
 P GP
 U Grace Hospital Bulletin
 U Guy's Hospital Reports
 F Gyógyszerészet
- H
- U Harper Hospital Bulletin
 U Hawaii Medical Bulletin
 F Hebrew Pharmacist
 F Heilmittel Berichte
 F P U Helvetica Chimica Acta
 U Henry Ford Hospital Medical Bulletin
 F P Helvetica Physiologica et Pharmacologica Acta
 F Highlights of Progress in Biologics Control
 F Hindustan Antibiotics Bulletin
 P Hoppe-Seyler's Zeitschrift für Physiologische Chemie
 F Hospital Pharmacist
 F Hyoyakukai; Journal of Pharmaceutical Association of Hyogo
- I
- U Illinois Medical Journal
 U Indian Journal of Medical Sciences
 F Indian Journal of Pharmacy
 F Industria Farmaceutica Venezolana

- F Industrial Chemist and Chemical Manufacturer
 P Industrial Medicine and Surgery
 U Institute of Contemporary Russian Studies, Fordham University
 F International Antibiotics News Bulletin
 U International Archives of Allergy and Applied Immunology
 F International Review of the Army, Navy and Air Force Medical Services
 P Internationale Zeitschrift für Vitaminforschung
 U Internist
 F Irish Chemist and Druggist
 F [Izdaniia] Berezotochskoi Ukrainskoi Opytnoi Stantsii Lekarstvennykh Rastenii

J

- F P U Japanese Journal of Pharmacology
 F Jornal dos Farmacêuticos do Ultramar
 P U Journal of Agricultural and Food Chemistry
 P U Journal of Allergy
 P U Journal of the American Chemical Society
 P U Journal of the American Dental Association
 U Journal of the American Geriatrics Society
 P U Journal of the American Medical Association
 U Journal of the American Medical Women's Association
 F P Journal of the American Pharmaceutical Association
 P U Journal of American Veterinary Medical Association
 U Journal of Animal Science
 F U Journal of Antibiotics; Series A (Tokyo)
 F Journal of Antibiotics; Series B (Tokyo)
 P U Journal of Applied Physiology
 P Journal of the Association of Official Agricultural Chemists
 P Journal of Bacteriology
 P Journal of Biological Chemistry
 U Journal of the Canadian Association of Radiologists
 P Journal of the Chemical Society of London
 P Journal of Chronic Diseases
 P U Journal of Clinical Endocrinology and Metabolism
 P Journal of Clinical Investigation
 U Journal of Clinical Pathology
 P Journal of Colloid Science
 U Journal of Comparative Pathology and Therapeutics
 U Journal of Dairy Science
 P U Journal of Dental Research
 U Journal of the Egyptian Medical Association
 P Journal of Endocrinology
 P U Journal of Experimental Medicine
 P Journal of General Microbiology
 P Journal of General Physiology
 P Journal of Gerontology
 U Journal of Helminthology
 P Journal of Immunology
 U Journal of Indiana State Medical Association
 P Journal of Industrial Hygiene and Toxicology
 P U Journal of Infectious Diseases
 U Journal of International College of Surgeons
 P U Journal of Investigative Dermatology
 U Journal of the Iowa Medical Society

- U Journal of the Kansas Medical Society
 U Journal of the Kentucky State Medical Association
 P U Journal of Laboratory and Clinical Medicine
 U Journal of the Maine Medical Association
 U Journal of the Medical Association of Georgia
 U Journal of the Medical Society of New Jersey
 F U Journal of Medicinal and Pharmaceutical Chemistry
 U Journal of the Michigan State Medical Society
 F Journal Mondial de Pharmacie
 P U Journal of the National Cancer Institute
 U Journal of the National Medical Association
 F Journal of National Pharmaceutical Association
 U Journal of Nervous and Mental Disease
 U Journal of Neurology, Neurosurgery and Psychiatry
 U Journal of Neurosurgery
 U Journal of New Drugs
 U Journal of the Newark Beth Israel Hospital
 P Journal of Nutrition
 U Journal of Obstetrics and Gynaecology of the British Commonwealth
 P Journal of Organic Chemistry
 P U Journal of Pediatrics
 F Journal of the Pharmaceutical Association of Thailand
 F P U Journal of Pharmaceutical Sciences
 U Journal of Pharmacology and Experimental Therapeutics
 F P Journal of Pharmacy and Pharmacology
 F U Journal of the Philippine Pharmaceutical Association
 P Journal of Physiology (London)
 F Journal of the Royal Army Medical Corps
 F Journal of the Society of Cosmetic Chemists; British Edition
 U Journal of the South African Veterinary Medical Association
 U Journal of the Tennessee State Medical Association
 U Journal of Tropical Medicine and Hygiene
 P U Journal of Urology
 P Justus Liebig's Annalen der Chemie
- K
- F Kagaku Ryoho
 F Kagaku Ryoho Kenkyusho Iho
 F Khimiia i Meditsina
 U Klinische Wochenschrift
 F Kolloid-Zeitschrift
 F Kosmetik-Parfum-Drogen Rundschau für Industrie Handel und Gewerbe
 F Krankenhaus-Apotheke, Beilage der Deutschen Apotheker-Zeitung
 U Kresge Eye Institute Bulletin
- L
- F Labo-Pharma
 U Lahey Clinic Bulletin
 P U Lancet
 U Laval Médical
 F Lebanese Pharmaceutical Journal
 F Lebensmittelrundschau
 F P Lederle Bulletin
 F Lekovite Sirovine, Zbornik Radova
 U Leprosy Briefs

- F Literatur-Dienst
 F Literatur-Eildienst "Roche" (Basel)
 F Lloydia
 F Lyon Pharmaceutique
 M
 F M & B Laboratory Bulletin
 F M & B Pharmaceutical Bulletin
 U Manitoba Medical Review
 F U Manufacturing Chemist
 U Marquette Medical Review
 F Materia Medica Nordmark
 F Meddelelser fra Norsk Farmaceutisk Selskap
 U Medical Annals of the District of Columbia
 P Medical Bulletin; Standard Oil Company of New York
 P Medical Clinics of North America
 U Medical Journal of Australia
 U Medical Journal of Malaya
 F Medical Letter on Drugs and Therapeutics
 F U Medical Observer and Chemotherapy Review
 P Medical Radiography and Photography
 U Medical Services Journal, Canada
 U Medical Times
 F Medicamenta
 F Medicamundi
 F Medicina, Cirurgia, Farmácia (Rio de Janeiro)
 U Medicina; Revista Mexicana
 F Medicinal Chemistry
 U Medicine
 F Meditsinskaja Promyshlennost SSSR
 U Memorias de la Sociedad de Ciencias Naturales "La Salle"
 F Merck Memo to Pharmaceutical Manufacturers
 P Merck Report
 P U Metabolism, Clinical and Experimental
 F U Mexico Farmacéutico
 F Mid-Atlantic Apothecary
 F Mikrochimica Acta
 F Mikroskopie; Zentralblatt für Mikroskopische Forschung und Methodik
 U Military Medicine
 F Minerva Pharmaceutica
 U Minnesota Medicine
 F Mises au Point de Chimie Analytique Pure et Appliquée et d'Analyse
 U Mississippi Valley Medical Journal
 U Missouri Medicine
 F Mitteilungen der Deutschen Pharmazeutischen Gesellschaft; issued with Archiv der Pharmazie und Berichte der Deutschen Pharmazeutischen Gesellschaft
 F Mitteilungen aus dem Gebiete der Lebensmitteluntersuchung und Hygiene
 F Modan Terapii
 F Modern Drugs
 U Modern Medicine
 U Modern Medicine of Canada
 P Modern Pharmacy
 F Momento Farmacéutico

- U Monatshefte für Chemie und Verwandte Teile Anderer Wissenschaften
 F Monitor de la Farmacia y de la Terapéutica
 F Monographs on Therapy
 F Münchener Medizinische Wochenschrift
- N
- F Naarden News
 F Nagoya Shiritsu Daigaku Yakugakubu Kiyō
 F N.A.R.D. Journal
 P U Nature
 F U Naturwissenschaften
 F Nauchno-Prakticheskaia Informatsiia Tsentral'nogo Nauchno-Issledovatel'skogo Aptechnogo Instituta
 F P U Naunyn-Schmiedebergs Archiv für Experimentelle Pathologie und Pharmakologie
 U Nebraska State Medical Journal
 F Neue Arzneimittel und Spezialitäten; Beilage der Deutschen Apotheker-Zeitung
 U Neurology
 P U New England Journal of Medicine
 F New and Nonofficial Drugs
 P U New York State Journal of Medicine
 U New Zealand Veterinary Journal
 F Nihon Yakurigaku Zasshi
 F Nihon Yakuzaiishi Kyokai Zasshi
 P Nordisk Medicin
 P Nordmark
 F Norges Apotekerforenings Tidsskrift
 F U Norsk Farmaceutisk Tidsskrift
 U North Carolina Medical Journal
 U Northwestern Druggist
 U Northwest Medicine
 F Noticias Farmaceuticas
 F U Nouveautés Médicales
 U Nouvelle Revue Française d'Hématologie
 U Nova Scotia Medical Bulletin
 F Noye Lekarstvennye Rasteniia Sibiri, Ikh Lechebnye Preparaty i Primenenie
- O
- U Obstetrical and Gynecological Survey
 U Obstetrics and Gynecology
 F Oil, Paint and Drug Reporter
 U Ontario Medical Review
 F Österreichische Apotheker Zeitung
- P
- U Pacific Science
 U Parasitology
 F Parfumerie, Cosmétique, Savons
 P U Pediatrics
 U Pennsylvania Medical Journal
 F Perfumery and Essential Oil Record
 U Pflügers Archiv für die Gesamte Physiologie des Menschen und der Tiere
 F U Pharmaceutica Acta Helvetiae

- F U Pharmaceutical Journal
- F Pharmaceutical Journal of New Zealand
- U Pharmaceutical Manufacturers Association Trade-Mark Bulletin
- F Pharmaceutical Revue
- F Pharmaceutisch Weekblad
- F Pharmaceutist
- F Pharmacie Industrielle
- U Pharmaciens
- F Pharmaciens de France
- F P Pharmacological Reviews
- F Pharmacologist
- F Pharmacology and Toxicology (New York); English Edition of Farmakologija i Toksikologija (Moskva)
- F Pharmacy Digest
- F Pharmacy International
- F Pharmacy Newsletter
- F Pharmaceutikon Deltion
- F Pharmazeutische Industrie
- F Pharmazeutische Praxis; Beilage zur die Pharmazie
- F Pharmazeutische Rundschau
- F U Pharmazeutische Zeitung
- F U Pharmazeutische Zentralhalle für Deutschland
- F P U Pharmazie
- F Pharmindex
- P Physician's Bulletin
- P Physiological Reviews
- F Planta Medica
- P Postgraduate Medicine
- U Poultry Science
- U Practitioner
- U Prairie Druggist
- F Praktikantenbriefe; Beilage der Deutschen Apotheker-Zeitung
- F Praktik Farmakolog
- P U Presse Médicale
- F Problèmes et Techniques, Revue Technique de Conditionnement, de Publicité et d'Organisation Générale des Laboratoires Pharmaceutiques
- P Proceedings of the American Association for Cancer Research
- F Proceedings of the Minnesota State Pharmaceutical Association
- F Proceedings of the Pharmaceutical Manufacturers Association
- F Proceedings; Pharmaceutical Society of Egypt; Scientific Edition
- P Proceedings of the Royal Society of London; Series B: Biological Sciences
- P Proceedings of the Royal Society of Medicine
- F Proceedings of the Scientific Section of the Toilet Goods Association
- P U Proceedings of the Society for Experimental Biology and Medicine
- F P U Proceedings of the Staff Meeting of the Mayo Clinic
- F U Produits Pharmaceutiques
- P Progress Notes
- U Psychopharmacologia
- U Psychopharmacology Abstracts
- P Public Health Reports
- F Public Pharmacist
- F Publicación Trimestral
- F Publicações Farmacêuticas
- F P Pulse of Pharmacy

Q

- F Qualitas Plantarum et Materiae Vegetabiles
 F Quarterly Bulletin; Association of Food and Drug Officials of the United States
 U Quarterly Bulletin of the Indiana University Medical Center
 P U Quarterly Journal of Experimental Physiology
 P Quarterly Reviews
 F Quimica y Farmacia

R

- F Recueil des Travaux Chimiques des Pays-Bas
 F Reports of the Pharmaceutical Society of Egypt
 U Research Reviews (Winston-Salem)
 P Research in the Service of Medicine
 F P Research Today
 U Review of Allergy and Applied Immunology
 F Revista Brasileira de Farmacia
 F Revista del Centro Estudiantes de Farmacia y Bioquímica
 F Revista del Colegio de Farmacéuticos del Distrito Federal
 F Revista del Colegio de Farmacéuticos Nacionales
 U Revista Cubana de Obstetricia y Ginecologia
 F Revista da Faculdade de Farmácia de Santa Maria
 F Revista de la Facultad de Ciencias Químicas
 F Revista de la Facultad de Farmacia y Bioquímica
 F Revista Farmacéutica
 F Revista Farmacéutica (Gôa)
 F Revista Farmacéutica da Bahia
 F Revista Farmacéutica de Costa Rica
 F U Revista Farmacéutica de Cuba
 F Revista Farmacéutica de Ouro Preto
 F Revista Farmacéutica Peruana
 F Revista Farmacéutica de Puerto Rico
 F Revista de Farmácia e Odontologia
 F Revista de la Federación Nacional de Químicos Farmacéuticos
 F Revista da Flora Medicinal
 F Revista Medico-Farmaceutica Dominicana
 F Revista Portuguesa de Farmácia
 F Revista de Química e Farmácia do Rio de Janeiro
 F Revista Químico-Farmaceutica
 F Revista de la Real Academia de Farmacia de Barcelona
 F Revista de la Sanidad Militar Argentina
 F Revista de la Union Farmacéutica de El Salvador
 F Revue de l'Assistance Publique
 F Revue d'Histoire de la Pharmacie
 F Revue Pharmaceutique Libanaise
 F Revue de Pharmacie; Pratique et Professionnelle
 F Rezeptvorschläge für Ärzte; Supplement to Österreichische Ärztezeitung
 F Rivista Italiana delle Essenze e Profumi
 U Rocky Mountain Medical Journal
 F Rocznik Farmaceutyczny
 F Rokeach Ha-Ivri

S

- F Sandoz Bulletin
 F Sandoz News
 F Sbornik Nauchnykh Trudov Leningradskogo Farmatsevticheskogo Instituta
 P U Scandinavian Journal of Clinical and Laboratory Investigation
 F P U Schweizerische Apotheker-Zeitung
 F P U Schweizerische Medizinische Wochenschrift
 P U Science
 U Science News Letter
 F Scientia Pharmaceutica
 F Scientific Communications
 U Sea View Hospital Bulletin
 F Seifen-Öle-Fette-Wachse
 F Seleções Científicas de Medicina e Farmácia, Rio de Janeiro
 P Seminar Report
 F Shoyakugaku Zasshi
 F U Soap and Chemical Specialties
 F U Soap, Perfumery and Cosmetics
 P Soap and Sanitary Chemicals
 U South African Journal of Medical Sciences
 U South African Medical Journal
 F South African Pharmaceutical Journal
 F South Dakota Journal of Medicine and Pharmacy
 P U Southern Medical Journal
 F Southern Pharmaceutical Journal
 P Spectrum
 P Stain Technology
 F Subsidia Medica
 F Suomen Apteekkarilehti
 P Surgery, Gynecology and Obstetrics
 U Surgical Clinics of North America
 F U Svensk Farmaceutisk Tidskrift

T

- F Technique Pharmaceutique
 F Tesis de Químicos Farmacéuticos; Universidad de Chile, Facultad de Química y Farmacia
 F Tesis de Químicos Farmacéuticos; Universidad de Concepción, Facultad de Química y Farmacia
 U Texas Pharmacy
 P Texas Reports on Biology and Medicine
 U Texas State Journal of Medicine
 P Therapeutic Notes
 F Therapeutische Umschau
 P Therapia
 F U Thérapie (Paris)
 F U Therapie der Gegenwart
 F U Therapiewoche
 F Tidskrift for den Norske Laegeforening
 P Tile and Till
 F U Toxicology and Applied Pharmacology
 F Trabajos del Jardin Botanico
 U Transactions of the American Academy of Ophthalmology and Otolaryngology

- U Transactions of the Faraday Society
 P Transactions of the Royal Society of Tropical Medicine and Hygiene
 F Travaux des Laboratoires de Matière Médicale et de Pharmacie Galénique
 F Travaux de la Société de Pharmacie de Montpellier
 F Triangel, Sandoz-Zeitschrift
 F Tribuna Farmaceutica
 U Tropical Diseases Bulletin
 U Tropical and Geographic Medicine
 F Trudy Vseoiuznogo Obshchestva Fiziologov, Biokhimikov i Farmakologov
 F Trudy, Vseoiuznogo Nauchno-Issledovatel'skogo Instituta Antibiotikov
 U Tubercle
 U Tufts Folia Medica
 U Turkey World

U

- F Ugeskrift for Laeger
 U Union Médicale du Canada
 F United Nations Department of Social Affairs: Assay, Characteristics, Composition, and Origin of Opium
 P U United States Armed Forces Medical Journal
 U University of Michigan Medical Bulletin

V

- F Veneficus
 U Veterinary Bulletin
 U Veterinary Medicine
 P Veterinary Record
 U Virginia Medical Monthly
 P Virology
 F Voprosy Meditsinskoi Khimii

W

- F P Wallerstein Laboratories Communications
 F West African Pharmacist
 U West Coast Druggist
 U West Virginia Medical Journal
 U Western Pharmacist
 P What's New
 F What's New in Food and Drug Research
 F Wiener Medizinische Wochenschrift
 U Wisconsin Medical Journal

Y

- F Yakkyoku
 F Yakugaku Kenkyu
 F Yakugaku Zasshi
 P U Yale Journal of Biology and Medicine
 F Yao Ho Hua Hsueh
 F Yao Hsueh Hsueh-Pao
 F Year Book of Drug Therapy

Z

- F Zeitschrift für Aerosol-Forschung und -Therapie
 F Zeitschrift für Vitaminforschung
 F Zur Geschichte der Pharmazie, Geschichtsbeilage der Deutschen Apotheker-Zeitung

APPENDIX E

DRUG INFORMATION SOURCES: A WORLD LIST

The following materials, compiled by a Committee of the Pharmaceutical Section, Science-Technology Division, Special Libraries Association, will appear later this year in the American Journal of Pharmacy and is a revision of the bibliography which appeared in that journal under the same title in 1957 (pages 4-10, 59-64, 95-101, 128-134, 172-176, 211-216, 257-261, 303-306, and 372-377) and 1958 (pages 102-104 and 345-351). It has kindly been made available to us in advance of publication by Miss Anne McCann, Chairman of the Committee and Librarian of the American Pharmaceutical Association.

Argentina

Manual De Especialidades Medicinales, ed. by Aaron Kaplan. 4th ed. 1959. 731 pages. \$10.00, including supplement.

Entries are listed alphabetically according to proprietary names of drugs or combinations. For each is given the name of manufacturer, composition, indications, dosage and method of administration, and forms and sizes supplied. A separate alphabetic index lists specialties by therapeutic indication or common name of drug. A list of manufacturers with their addresses and products is also included.

El Ateneo

Florida 340-344

Buenos Aires, Argentina

APhA

Nuevas Especialidades Medicinales. Reprint from Orientacion Medica.

Entries from the "new drug" section published in the medical periodical Orientacion Medica are periodically reprinted as a cumulative alphabetic list. Each entry provides trade name, manufacturer, composition, indications, administration, precautions and dosage forms available. A therapeutic index to specialties precedes the alphabetic listing.

Orientacion Medica

Lavalle 1653

Buenos Aires, Argentina

APhA

Australia

Prescription Proprieties Guide for Doctors and Chemists, ed. by G. K. Treleaven. 1961. Quarterly supplements, 1961-1962.

Prescription specialties are listed alphabetically by trade name with composition, indications, dosage, directions for use, forms and sizes available, name of manufacturer and laws to which the product is subject. A separate section lists veterinary products. A therapeutic index for human products is included, as well as an alphabetic list of approved names with trade-name equivalents. A new edition has been announced for early 1963 at £10/10s.-, including quarterly supplements until 1965.

Australasian Pharmaceutical Publ. Co., Ltd.

Guild House

18-22 Saint Francis Street

Melbourne. C.1. Australia

NLM

Austria

Spezialitäten Verzeichnis. Hauptverband der Österreichischen Sozialversicherungsträger. 1960. 546 pages (looseleaf).

Drugs are listed in two sections, one for drugs available free through the state-controlled organization and one for drugs available by purchase. In each section arrangement is according to therapeutic classes. Dosage forms and sizes with prices in shillings are given for all specialties.

Verlag des Hauptverbandes der Österreichischen

Sozialversicherungsträger

Rossauer Lände 3

Vienna 9, Austria

NLM

Brazil

Formulário Médico-Farmacêutico Brasileiro, comp. by Dr. Virgilio Lucas. 2d ed. 1959. 700 pages. Cr. \$2,800.00.

Despite the growing predominance of manufacturers' specialties, a total of 5,000 formulas has been collected and published for the use of hospitals and other pharmacy practitioners. Formulas are listed alphabetically under descriptive or non-proprietary names and give, in addition to constituents, methods of preparation and storage, indications and recommended dosage. Among the appendixes are a therapeutic classification, a therapeutic index, an index according to titles, including alternate forms of the names, and an index to proper names of authors in the formulas.

Editôra Científica

APhA

Rio de Janeiro, Brazil

Vademecum Médico-Farmacêutico. 5th ed. 1961. 830 pages. Cr. \$850.00.

Part I is a 608-page alphabetic list of pharmaceutical specialties marketed in Brazil. Products are listed according to trade names and each entry gives name of manufacturer, dosage form, constituents, indications, dosage and method of administration and package sizes supplied. Part II is a therapeutic index to the products listed in part I, and part III a list of manufacturers with their addresses, local representatives and products.

Livraria Vademecum Editôra, Ltda.

APhA

Rua Barão de Itapetininga, 273, 7.º andar
São Paulo, Brazil

Bulgaria

Farmatsevtichen Spravochnik, by B. Avramova. 1961. 963 pages.

In this handbook entries are arranged alphabetically according to common or nonproprietary name of drug. Western names for the drugs are given at the head of the entry as well as Bulgarian names, and an index to Western names included. All text is in Bulgarian (Cyrillic alphabet).

Drasihavno izdatelstvo "Meditzina y Fizicultura"

NLM

Sofia, Bulgaria

Canada

Compendium of Pharmaceutical Specialties, edited by F. N. Hughes. 1st edition, 1960. 576 pages. \$9.00, including supplements.

Monographs entered under trade names provide descriptions, manufacturers, indications, instructions for administration, dosage forms and sizes for approximately 6,000 prescription products distributed in Canada for human use. It continues and supersedes the New Products Index. A list of manufacturers with their products and a therapeutic index are also included, but no index or cross-references for nonproprietary names of drugs. The semiannual supplements are cumulative. With the second and successive supplements lists of veterinary drugs were included.

Canadian Pharmaceutical Association

APhA

221 Victoria Street

Toronto 2, Ontario

Physician's Personal Pharmaceutical Guide. Published monthly in the journal *Applied Therapeutics*, \$12.00 per year.

Entries for new drug specialties are printed on sheets perforated in the approximate size $3\frac{3}{8}''$ by $4\frac{1}{8}''$ so that they may be detached and filed. Each entry furnishes information about manufacturer, composition and forms supplied, indications, dosage and method of administration, precautions, if any, and package sizes. The entries are headed by terms indicating therapeutic activities, as Anorexiant, Hemostatic, Diuretic, Keratolytic, etc., in order to permit primary filing under therapeutic category.

Applied Therapeutics

APhA

443 Mt. Pleasant Road

Toronto 7, Ontario, Canada

V-1; *Vademecum International* 1963. 10th ed. Separately paged sections. An annual listing of pharmaceutical specialties and biologicals in several sections: the white section reports composition, uses, dosage, supply and availability of company literature for the major products distributed in Canada. Entries are grouped under manufacturers' names. The yellow section is a therapeutic and pharmacologic index to products listed in the white section and the pink section is a comprehensive alphabetic list of all specialties marketed and a list of manufacturers with all their products but no product information. The other section is for physicians' reference, with dosage schedules, antidotes for poisoning, and so forth. Both French and English editions are published. The *Vademecum* is widely distributed by manufacturers.

J. Morgan Jones Publications, Ltd.
6300 Park Avenue
Montreal 8, Quebec, Canada

APhA

Cuba

Formulario Nacional 1963. Ministerio de Salud Publica, Republica de Cuba. 206 pages.

Medicinal preparations for prescribing in Cuba are listed under non-proprietary names, arranged in categories according to therapeutic activity. For each preparation is given its therapeutic constituent(s) and strength, dosage forms and package sizes. A separate formulary section is included with instructions for those preparations which have to be compounded. Alphabetic indexes to monograph titles and to principal therapeutic substances are included.

Ministerio de Salud Publica
Havana, Cuba

APhA

Denmark

Specialitetstakst. Danmarks Apotekerforening. 11th ed. 1962. 530 pages. Dkr. 50,-. Supplements, Dkr. 20,-.

Specialitetstakst is the pharmaceutical association's list of specialties manufactured or sold in Denmark. Each individual entry gives composition, manufacturer, forms supplied, price and reference to pricing and prescribing regulations. A separate section lists manufacturers with their addresses and names of their Danish representatives. Specialitetstakst is supplemented by detachable leaves in *Archiv for Pharmaci og Chemi* (biweekly); these are also supplied separately on gummed sheets. Revision is approximately every other year. The address of the association is Hammerichsgade 14, Copenhagen V.

Nordisk Forlag Arnold Busck
Købmagergade 49
Copenhagen C, Denmark.

APhA

France

Répertoire Permanent Des Spécialités. Conseil National de l'Ordre des Pharmaciens. Monthly.

Cards 4" by 5 $\frac{3}{8}$ " provide information about pharmaceutical specialties distributed in France. Products are entered under trade names of specialties and each entry supplies name and address of manufacturer, forms and sizes supplied, composition, frequently including structural formula, indications, dosage and social security status. Corrections are issued as required.

C.N.O.P.
4, avenue Ruysdaël
Paris 8e, France

APhA

Germany

Hagers Handbuch der Pharmazeutischen Praxis Für Apotheker, Arzneimittelhersteller, Drogisten, Ärzte und Medizinalbeamte. New edition by G. Frerichs, G. Arends, H. Zörnig. Vol. 1 (A-J), 1573 pages, 1938 (reprinted 1949), DM 75. Vol. 2 (K-Z), 1938 (reprinted 1949), 1579 pages, DM 75. Supplement volume, 1944 (reprinted 1949), 1610 pages, DM 75. Second supplement in 2 parts, 1958. 2544 pages, DM 224.

The second supplement brings this comprehensive work up to date through the end of 1956. Volume 1 includes general monographs (e.g.,

analytical methods, radioisotopes) and monographs on specific substances, A-H. Volume 2 contains the rest of the monographs, I-Z, and a general index to the original volumes and both supplements. For a description of the full work, see DIS entry in American Journal of Pharmacy, April 1957, page 129.

Springer-Verlag
Heidelberger Platz 3
Berlin-Wilmersdorf, Germany

APhA

Moderne Arzneimittel, by Dr. Burghard Helwig. 2d ed. 1961. 1313 pages. DM 148 (approx. \$37.00)

Moderne Arzneimittel is an extensive compilation of reference information about drugs. Chapters and subsections, which are arranged according to therapeutic categories, are introduced by short discussions of the principles of therapy. Manufacturers' specialties are listed at the end of appropriate therapeutic sections. For each specialty is given its composition, manufacturer, indications, package sizes and strengths and suggested dosage and method of administration. Three separate indexes are included: trade names; indications; and nonproprietary names and pharmacologic classes.

Wissenschaftliche Verlagsgesellschaft m.b.H.

NLM

Postfach 40
Stuttgart 1, West Germany
Novitäten-Kartei. Monthly.

Cards 4" by 6", giving information about drug specialties of German manufacturers. Entries are under trade names of drugs and each entry gives rather comprehensive information concerning the composition, chemical structure, indications, method of administration, forms supplied, dosage, manufacturer's name and address and occasionally literature references. The service is prompt. Revised cards are mailed when new forms are introduced. A supplementary announcement refers to drugs that have been discontinued. The cards are dated.

Arbeitsgemeinschaft der Berufsvertretungen Deutscher Apotheker APhA
Platz der Republik 42, Frankfurt/Main, Germany

Rote Liste. Bundesverband der Pharmazeutischen Industrie, 1961. 1124 pages.

Rote Liste is a price list, with drug entries alphabetically arranged by proprietary name, followed by brief statement of composition, indications, dosage forms and sizes available, prices and manufacturer. A separate section lists firms with their addresses and products. Rote Liste is revised every 2 years.

Editio Cantor
Aulendorff/Württ.
West Germany

APhA

NLM

Dr. Rothgangs Spezialitäten-Praktikum, by Hans Rothgang. 1961. 1216 pages.

Specialties are listed according to therapeutic categories. For each drug is given its manufacturer, brief statement of composition, indications, dosage forms and package sizes available, and price.

NLM

J. F. Lehmann-Verlag
Paul Heyse Strasse, 26-28
Munich 15, Germany

Volkstümliche Namen der Arzneimittel, Drogen, Heilkräuter und Chemikalien, ed. by Dr. Johannes Arends. 15th ed. 1961. 418 pages. DM 18.60 (approx. \$5.00).

The common names (German) of drugs, medicinal plants and chemicals, particularly those used in folk medicine, are listed with synonymous Latinized terms as used in the 6th German Pharmacopeia and its latest supplement.

Springer-Verlag
Heidelberger Platz 3
West Berlin, Germany

APhA

East Germany

Arzneimittelverzeichnis, comp. by K. Gerecke and others. Staatliches Institut für Arzneimittelprüfung. 4th ed. 1959. 364 pages. 5.40 DM.

The principal section of Arzneimittelverzeichnis is an alphabetic list of drugs used in the DDR. Entries are under both proprietary and non-proprietary names and reference is made to names of manufacturers. A brief statement of composition, indications, recommended dosage, dosage forms supplied and prices is given for each therapeutic substance. Other sections list biological products, dental preparations, and names of manufacturers with their addresses.

VEB Verlag Volk und Gesundheit
Berlin C2, Germany

NLM

Great Britain

The British Encyclopaedia of Medical Practice. Pharmacopoeia. 3d. ed. 1961. 1006 pages.

The Pharmacopoeia is an extensive compilation of monographs on more than 1800 therapeutic and diagnostic agents. The monographs are entered under proprietary names and they provide the name of manufacturer, restrictions under the various drug statutes, where applicable, composition, actions, indications, dosage and method of administration, contraindications and possible side effects, and dosage forms and sizes. A therapeutic index is also included.

Butterworth and Co.
88 Kingsway

NLM

London, W.C. 2, England

The British Pharmaceutical Codex 1959. Pharmaceutical Society of Great Britain. 1330 pages. 70s.

The format and scope of the new edition are essentially the same as the 1954 edition, which was annotated in DIS in American Journal of Pharmacy, March 1957, page 95.

Pharmaceutical Press
17, Bloomsbury Square
London, W. C. 1, England

APhA

The British Veterinary Codex 1953. Pharmaceutical Society of Great Britain. 760 pages. 45s. —Supplement, 1959. 152 pages. 35s.

See DIS in American Journal of Pharmacy, page 98, for full annotation.

The Extra Pharmacopoeia (Martindale). Volume 1, 24th ed., 1958, 1725 pages, 65s., volume 2, 23rd ed., 1955, 1532 pages, 57s./6d., Supplement 1961, 326 pages, 32s/6d.

Volume 1 of the Extra Pharmacopoeia, containing most of the information about composition and therapeutic actions of medicinals, has had to be supplemented even before volume 2 could be revised. The supplement provides monographs and brief entries on new drugs and specialties introduced through April 1961, updates other sections and fully revises the list of over-the-counter proprietaries which appeared in volume 2. Fuller annotations have appeared in DIS in American Journal of Pharmacy March 1957, page 95, and October 1958, page 347.

Pharmaceutical Press
17, Bloomsbury Square
London, W.C. 1, England

APhA

Guide to New Medicaments. Published once a month in the weekly journal, Chemist and Druggist, £3 10s./year.

Gummed reprints suitable for attaching to 3" by 5" cards may be obtained free with subscription to the journal. Entries are under trade names, each giving name and address of manufacturer, composition, indications, dosage, how supplied and date the product was first issued. Notes on the products appear in the regular pages of the same issue of Chemist and Druggist.

The Chemist and Druggist
Morgan Brothers, Ltd.
28 Essex Street, Strand
London, W.C. 2, England

Index of New Products. Monthly. £3/year.

Cards 4" by 6" give information about drugs of British pharmaceutical manufacturers and distributors. Entries are under proprietary name or under common name if no proprietary name is used. Each entry sup-

plies information about composition, properties, indications and contraindications, toxicity, dosage, references to journal literature, packing and price and manufacturer's name and address. A therapeutic index and a list of cross references from official and common names to proprietary names are published periodically in a booklet.

Pharmaceutical Journal
17, Bloomsbury Square
London, W.C. 1, England

DIS

London Medical Handbook. Annual. Included with subscription to Chemotherapy Review, 27s., 6d. or at 7s/6d./single copy.

An alphabetic list of medical specialties furnished to visitors to the London Medical Exhibition. Information for each entry includes the name of the manufacturer, brief statement of composition, indications, dosage forms supplies and prices. It also has a cross index by diseases.

British and Colonial Druggist Ltd.
194-200, Bishopsgate
London, E.C. 2, England

NLM

Pharmacy Digest New Prescription Products Card-Index Service. Monthly, with annual subscription to Pharmacy Digest, 20s.

Cards 3" by 5" with information about the prescription products released in the United Kingdom. Entries are under proprietary names and provide name of manufacturer, composition, indications, dosage, packings and prices and restrictions on sales, if any. Formerly titled The Alchemist New Prescription Products card service.

Pharmacy Digest
Alchemist Publications
25 Oxford Street
London, W. 1, England

APhA

Prescribers' Journal. Bimonthly, March 1961 to date. 2s./6d. per year.

Prescribers' Journal is published under the direction of a committee of management and distributed to medical practitioners in the National Health Service, hospitals and medical schools in Great Britain and on subscription to others. It contains articles commenting on the effectiveness of currently used drugs and on trends in modern treatment. From time to time comparative cost studies are published. Annual indexes are prepared.

Dr. J. L. Hunt, Editor
Chesham House
136 Regent Street
London W. 1, England

APhA

Hong Kong

Gregg's Directory of Special Pharmaceutical Preparations. 4th ed. 1959. 578 pages.

Pharmaceutical specialties are listed alphabetically. The individual entries give information about composition, indications, forms available and manufacturer. Alphabetic lists of importers and representatives of foreign firms are also included.

N. B. Mahomed
Gregg Publishing Company
495 Castle Peak Road
Kowloon, Hong Kong

NLM

India

Materia Medica of Pharmaceutical Combinations and Specialties, by Dr. U. B. Narayanrao. 5th ed. 1954. Supplement 1961. Both for Rs. 25.00 (\$10.25) (Supplement alone, Rs. 8.00). 421 pages.

Specialties sold in India are listed alphabetically with brief information about manufacturer, composition, indications, dosage and forms. A comprehensive list of manufacturers with Indian agents and addresses of both is included, as well as a therapeutic index to products listed. Another supplement is expected approximately June 1963.

Medical Digest
1, Nagindas Mansions
Girgaum Road
Bombay 4, India

DIS

International

Chemotherapy Research Bulletin. Editor: Robert W. Kirkby, M.D. November 1961 to date. Bimonthly. \$45.00 per year.

An alerting service describing new drug developments in pharmacology and chemotherapy. Each entry provides an abstract of an important paper, selected by members of an international editorial staff from the periodical literature of 8 countries. Entries are under pharmacologic category, as is the only index provided by the Bulletin. The subject compounds are well characterized according to chemical or biological structure and abstracts are detailed. Filing under name of compound would be difficult, however, because the name is sometimes a research number, other times a nonproprietary, chemical or trade name. The sheets are perforated to be filed as 4" by 6" cards. A total of 181 cards were issued in volume 1. Service is expected to be expanded in volume 2.

Chemotherapy Research Institute Inc.
507 Fifth Avenue
New York 17, N.Y.

APhA

Drugs of Today, ed. by Dr. J. R. Prous. \$12.00/year.

Cards 3 $\frac{3}{8}$ " by 6" (10 by 15cm.), issued at a rate of 15-20 per quarter, with annual cross index. Drugs are listed by nonproprietary name and information is given about physical properties, identity tests, analytical methods, action and uses, toxicity, methods of administration, dosage forms and literature references. The English edition in Spanish (Medicamentos de Actualidad), started in January 1962.

Drugs of Today
Apartado de Correos 540
Barcelona, Spain.

APhA

Index International Pharmaceuticus, ed. by A. Heinige and others. Státní Zdravotnické Nakladatelství. 1958. 867 pages. 84 Kčs (Approx. \$11.75)

The principal section is a collection of official, nonofficial, scientific and trivial names of medicinal substances and preparations, as well as substances and chemicals used for laboratory purposes, as entered in the latest editions of pharmacopeias and other publications. These names are latinized and the arrangement is alphabetic. Names are included from Czech, Polish, Russian and other Eastern European compendia. Trade names are included as synonyms in a separate section, with cross references to and from the names used in the first list.

Státní Zdravotnické Nakladatelství
Malostranské nám. 28
Prague 1, Czechoslovakia

NLM

International Non-proprietary Names for Pharmaceutical Preparations; Cumulative List 1962. World Health Organization, Geneva, 1962. \$1.00.

This publication brings together in a single list all the proposed international nonproprietary names in lists no. 1-11 of the WHO Chronicle, 1953-1961. The names are arranged alphabetically by Latin form of name, followed by English name and chemical name or description. Latin and English forms are alike (dichlorisonum, dichlorisone) with the exception of acids, for which inversion causes the Latin name to be removed from the position expected in American practice (acidum nicotinicum instead of nicotinic acid). The procedure for the selection of recommended international nonproprietary names is annexed and general principles for devising them.

Columbia University Press, International Documents Service

APhA

2960 Broadway, New York 27, N.Y.

Organisch-Chemische Arzneimittel Und Ihre Synonyma, by Martin Negwer. 2nd ed. 1961. 731 pages. DM. 55.00 (approx. \$14.00)

This formula index includes nearly 2700 single chemical entities used in medical practice. For each entry is given its structural formula, chemical name (German nomenclature), variant nonproprietary and trade

names and therapeutic use. Individual salts and esters are distinguished from base compounds. Approximately 16,000 synonyms are included in the general alphabetic index.

Akademie-Verlag
Leipziger Strasse 3-4
Berlin W 1, Germany

APhA

Pharmacological and Chemical Synonyms 1961, comp. by F.E.J. Marler. 3d ed. 267 pages \$7.50.

The new edition lists in a single alphabet approximately 13,000 synonyms of drugs and other substances of biological or biochemical interest, collected over a period of 10 years from the medical literature of the world. Each substance has one single heading, always a nonproprietary name, followed by the chemical name, alternative nonproprietary names, research numbers, and finally a number of trade names, if known. In some cases trade names of mixtures of which the drug is a component are given. Each synonym has its own alphabetic entry referring to the approved name, which is the name approved by the International Pharmacopoeia, when possible. Numerous entries are made for chemical compounds with their salts and esters and for families of chemical compounds (as pyrimidines, etc.)

APhA

Excerpta Medica
2 East 103rd Street
New York 29, N.Y.
119-123 Herengracht
Amsterdam, The Netherlands.

Side Effects of Drugs, comp. by L. Meyler, M.D. 1957 to date. vol. 1, \$3.95; vol. 2, \$5.00; vol. 3, —.

This is a continuing survey of the medical literature of the world for reports of untoward effects of drugs. Drugs are grouped in chapters according to pharmacologic action and appear in bold-face type under their nonproprietary names. Synonyms, including chemical and proprietary names, follow nonproprietary names. Side effects are reported in detail and each report is documented by reference to the medical literature. A general alphabetic index to all names and to classes of drugs is included. Volume I covers the literature of 1955-1966; volume 2, 1957; volume 3, 1958-1960.

Excerpta Medica
2 East 103rd Street
New York 29, N.Y.
119-123 Herengracht
Amsterdam, The Netherlands

APhA
NLM*Italy*

L'Informatore Farmaceutico Italiano. 1962. 1044 pages. \$15.00, including supplement.

The principal section is an alphabetic list of specialties, giving for each its manufacturer's name, a brief statement of composition and action, dosage forms, sizes and prices. A list of manufacturers with addresses of offices or representatives in Italy; products are listed for each manufacturer. There is also a section for veterinary products and one for cosmetics, dietetic foods and other health products.

Organizzazione Editoriale Medico-Farmaceutica
Via Edolo 42
Milan, Italy

NLM

Japan

Modern Pharmaceuticals of Japan. II. 1961. 138 pages.

An English-language compilation of short monographs about the major drugs currently supplied by Japanese pharmaceutical manufacturers. Arrangement is according to therapeutic classification. Monographs give information about chemical composition and description, pharmacological action, toxicity, clinical results, administration and dosage, indications, and manufacturer. Of special interest is the 33-page section of drugs developed in Japan. An alphabetic index includes both proprietary and nonproprietary names.

Japan Pharmaceutical, Medical and
Dental Supply Exporters' Association

APhA
NLM

No. 10, 1-chome

Nihonbashi

Muromachi, Chuo-ku

Tokyo, Japan

Mexico

Diccionario de Especialidades Farmaceuticas, comp. by Ignacio Landero and Emilio Rosenstein. 9th ed., 1962. 556 pages.

The several sections include: a comprehensive list of products with name of manufacturers; a shorter list with full information about composition, indications, administration, forms supplied, and name and address of manufacturer; a therapeutic index; and a list of manufacturers with their products. In all cases entries are under manufacturers' trade names; an index by nonproprietary name is lacking.

Ediciones P.L.M.

APhA

Medellin 184

Mexico 7, D.F.

Las Plantas Medicinales de Mexico, by Prof. Maximino Martinez. 4th ed. 1959.

The text has been divided into 3 sections, one covering plants whose botanic classification is known and on which scientific studies have been reported; one for plants of known botanic classification with therapeutic activity claimed but unsupported scientifically; and one for plants not identified botanically but used in folk medicine. The monographs report available information on botanic name, other common names, habitat, description and properties, useful parts, chemical composition, pharmacologic action, therapeutic properties and dosage. Monographs are illustrated and literature references are often given. All plant names are included in the general alphabetic index.

Ediciones Botas

NLM

Mexico, D.F.

Netherlands

Geneeskundig Jaarboek Voor Nederland, by J. B. Lenstra and Dr. J. Gerbrandy. 1st part. 79th ed. 1962. 366 pages.

The principal section is a 189-page list of drugs under latinized form of nonproprietary name with descriptions, physical characteristics, actions and instructions as to dosages and methods of administration. Other sections give information about sera and vaccines, narcotics, vitamins, poisons and so forth.

W. J. van Hengel

NLM

Schiedamse Vest 51

Rotterdam 2, Netherlands

Geneesmiddel Compendium, by Dr. H. R. M. De Haan. 3d ed. 1962. 636 pages. Hf. 27.50.

The drug handbook is a companion volume to Dr. De Haan's Therapie Compendium, listed below. Substances used in therapy are listed in a single alphabet under proprietary and nonproprietary names. Entries under proprietary names furnish names of manufacturers, compositions and forms supplied. A brief statement of therapeutic action, chemical structure, physical properties, dosage and specialties in which the substance is a constituent appears under each nonproprietary-name entry.

There is also a list of manufacturers with their addresses in the Netherlands and Belgium.

L. Stafleu en Zoon
Stationsweg 10
Leiden, Netherlands APhA

Pinkhof en Van Der Wielen, *Pharmacotherapeutisch Vademecum*, ed. by Dr. J. Kok. 10th ed. 1959. 1008 pages. Hf. 57.50.

In this reference compendium monographs are arranged alphabetically by common name of drug and contain extensive information about physical and chemical characteristics, actions, dosage and contraindications. Literature references are frequently cited. Chemical names and formulas, botanic names and trade names are given, as well as formulas for dosage forms. Common, botanic and trade names are included in the general alphabetic index.

D. B. Centen's Uitgeversmaatschappij
Zeverestraat 4
Hilversum, Netherlands NLM

Therapie Compendium, by Dr. H. R. M. De Haan. 9th ed. 1961. 602 pages. Hf. 20.00.

This is a therapeutic handbook for physicians. Diseases are listed alphabetically, followed by concise statements providing description, symptoms and treatment. The therapeutic measures suggested are very specific with respect to drugs, providing formulas for prescription-writing and also names of manufacturers' specialties, with dosages and directions for administration in both cases. There is an alphabetic index to therapeutic agents in the text and one for proprietary names, the latter giving names of manufacturers.

L. Stafleu en Zoon
Stationsweg 10
Leiden, Netherlands APhA

Poland

Leki Wspolczesnej Terapii (Drugs in Modern Therapy), comp. by Dr. Jan Kazimierz Podlewski and Alicja Chwalibogowska-Podlowska. 4th ed. 1962. 764 pages. 120 zl.

In this handbook, entries are arranged in a single alphabetic list; they may be under proprietary or nonproprietary name, but the nonproprietary name is used if several trade-name preparations have the same constituent. For each entry information is given as to the name of manufacturer, description, synonyms, action and use, dosage and forms available. Cross references from alternate names are supplied. Research numbers and abbreviations appear in the main list, and are also listed separately. A list of manufacturers with their addresses is included.

Panstwowy Zaklad Wydawnictw Lekarskich
Warsaw, Poland APhA

Portugal

Simposium Therapeutico 1961. 6th ed. 811 pages.

The alphabetic list of specialties in this edition has been expanded to 684 pages. For most of the entries information is given about manufacturer, composition, indications, method of administration, and dosage forms supplied. An index according to therapeutic indications and a list of manufacturers and representatives are also included.

Simposium Therapeutico
Rua de Ponta Delgada, 58
Lisbon 1, Portugal NLM

Scandinavia

NFN-Navne. *Nordiske Farmakopénaevn*. 2d ed., ed. by F. Reimers. 1958. 167 pages. Kr. 11.50.

—Supplement, 1961. 91 pages. Kr. 8.75.

Names approved for the Scandinavian pharmacopeia are listed alphabetically. Other pharmacopeias in which the names are official are also designated. For each name is given the chemical name of the substance where possible, other nonregistered names, trade names of specialties, and pharmacologic classification. All names are crossreferenced to NFN-Names in the general index.

Nyt Nordisk Forlag Arnold Busck
Copenhagen, Denmark

Spain

Fármacos; Enciclopedia de Medicamentos y Especialidades. 1st ed. 1953. Quarterly supplements to date.

The principal portion is a compendium of information about manufacturers' specialties, which are listed under their proprietary names. For each is given its composition, indications, method of administration and dosage and forms and sizes supplied. Entries are listed under the name of manufacturer. An alphabetic index to proprietary names is furnished. The index has been cumulated every second year for the supplements.

NLM

Farmacos

Guetaria, 1

San Sebastian, Spain

Vademecum Internacional de Especialidades Farmaceuticas y Biologicas; V-I 1962. 3d ed. Separately paged sections.

An annual listing of pharmaceutical specialties and biologicals in several sections: the white section reports composition, actions and indications, method of administration, dosage, and forms supplied for each of the major products distributed in Spain. Entries are grouped under manufacturers' names. Other sections include a therapeutic and pharmacologic index, a list of manufacturers with their addresses and products and a more complete alphabetic list of specialties. The Vademecum is widely distributed by manufacturers.

J. Morgan Jones Publications, Inc.

APhA

P.O. Box 667

Islamorada, Florida

Sweden

Apotekens Register över Standardförpackade Läkemedel 1962-1963. Apotekarsocietetens Informationsavdelning. 575+83 pages. Sw. crs. 75.-, including supplements (Tillägg and Prisändringar)

The Register is a comprehensive alphabetic list of pharmaceutical specialties and ACO drugs sold in Sweden. Each individual entry gives composition, manufacturer, forms and sizes issued, price, and where applicable, classification as a poison or narcotic. The therapeutic class number is also given for each drug and a separate "Synonym-register" lists all the drugs according to therapeutic category. Other sections list roentgen contrast materials, biological preparations, manufacturers and local representatives of foreign manufacturers, and non-proprietary names (especially NFN (Nordisk Farmakopenaevn) names). Products listed in the Register have been examined and released for sale by the Royal Medical Board and its pharmaceutical laboratory. Supplements are gummed sheets, scored so that new entries can be pasted in the book. The Register is revised annually.

Apotekarsocietetens Informationsavdelning

APhA

Upplandsgatan 6A

Stockholm C, Sweden

Switzerland

Dictionnaire Suisse des Spécialités Pharmaceutiques; Schweizerisches Nachschlagebuch für Pharmazeutische Specialitäten, ed. by Dr. P. Rentschnick and J.-P. Balavoine. 1958. 520 pages.

Specialties are listed alphabetically. Entries supply information about composition, action, indications, dosage forms supplied and manufacturer for each. Bibliographic references are frequently supplied. The text is in both French and German.

Editions Médecine et Hygiène

NLM

Rue Micheli-du-Crest, 22

Geneva 4, Switzerland

Mitteilungen über Neue Pharmazeutische Spezialpräparate/Aperçu de Spécialités Pharmaceutiques Nouvelles.

Cards 4 $\frac{1}{8}$ " by 5 $\frac{13}{16}$ " provide information about important drugs of all countries. Products are entered under proprietary names, one product

to a card. For each is given name of manufacturer, composition (sometimes with chemical formula), actions, indications, contraindications, dosage, supply and sometimes literature references. The service is very prompt. The text may be in French or German.

Documentation Galenica

Haslerstrasse 16
Bern, Switzerland

Subsidia Pharmaceutica. Schweizerischer Apothekerverein, Wissenschaftliche Zentralstelle. 1957 to date. Looseleaf.

The Research Center of the Swiss Pharmaceutical Society has undertaken the publication, in sections, of a comprehensive compendium in looseleaf form. Supplements have added new matter each year to the first volume, published in 1957. Review articles have been published on the drugs of several therapeutic groups, roentgen contrast media and sex hormones being recent examples. The reviews always contain lists of individual products representative of the group, including trade-named products of manufacturers. Other sections include specifications for drugs prepared by the Swiss pharmacopeia, a section on new galenic preparations, a section reporting new equipment and a section of tables. The Index Nominum, a separate volume, is an alphabetic list of drugs including chemical, nonproprietary and proprietary names. Main entries are under nonproprietary names, with chemical names, structural formulas and proprietary names with manufacturers (from various countries). Other name entries are cross references to the principal entries. The index has been revised and supplemented in order to keep it up to date.

Schweizerischer Apothekerverein

NLM

Sihlstrasse 37

Zürich 1, Switzerland

Übersicht der Gebrauchlichen und Neueren Arzneimittel für Ärzte, Apotheker und Zahnärzte, by Dr. E. Bernoulli and Dr. H. Lehmann. 10th ed. 1962. 576, LXIII pages. Approx. \$6.00.

In this compact reference book, drugs are arranged according to pharmacologic classification. Monographs may be on individual drugs (under nonproprietary names) or on classes of drugs. Each monograph reports chemical composition, actions, indications, contraindications, method of administration and dosage. A list of individual drug specialties and combinations follows the general discussion. Additional sections include a list of formulas for prescription writing, a list of contrast media and a therapeutic index. A general alphabetic index lists all drug names.

Benno Schwabe & Co.

APhA

Basel, Switzerland

United Arab Republic

Medical Index, Middle East. 3d ed., 1961-1962. Separately paged sections.

The Index includes a 613-page alphabetic list of pharmaceutical specialties marketed in the Middle East. Each entry supplies name of manufacturer, composition, indications, contraindications, dosage and method of administration and package sizes. Other sections are: a list of local and foreign laboratories; a list of agents representing the laboratories; an index to specialties according to their major constituents or pharmacologic effects; and a therapeutic index to specialties.

Medical Index, Middle East.

NLM

29, Abdel Khalek Sarwat Street
Cairo, Egypt, UAR

United States

American Hospital Formulary Service. Looseleaf volume with supplements. \$15.00 including binder and supplemental service for one year. \$5.00/year for supplements thereafter.

The Formulary Service is a looseleaf collection of drug monographs, intended for use by hospital pharmacy and therapeutics committees in preparing their own hospital formularies. The monograph of each drug is entered under nonproprietary name, giving common synonyms and proprietary names, if known. Monographs are full and descriptive, with emphasis on rational therapeutic procedures. They are classified according to the pharmacologic actions of the individual agents. Each monograph includes a list of the dosage forms most commonly used in hospitals. All names appear in the general alphabetic index, which is revised each year.

American Society of Hospital Pharmacists APhA
2215 Constitution Ave., N.W.
Washington 7, D.C.

Clin-Alert. Irregular. Annual subscription, U.S. or Canada, \$15.00.

Clin-Alert is an alerting service for literature reports of drug reactions. Coverage is mainly limited to the medical periodical literature of the United States. Short abstracts of the articles are provided. In addition to clinical reports, comments upon hospital practice and practitioner's liability are included. An index to names of drugs and other principal subjects was published at the end of 1962.

Science Editors, Inc. APhA
800 Commonwealth Building
Louisville 2, Kentucky

Identification Guide for Solid Dosage Forms. Journal of the American Medical Association 182: 1145-1302 (Dec. 22, 1962). Single copy available at 45 cents.

The more than 5,000 dosage forms (tablets, soft gelatin capsules and hard gelatin capsules) are assigned code numbers determined by their physical characteristics (size, shape, color and markings). The code numbers are tabulated in such a fashion that the investigator, having determined the code number describing the physical characteristics of an unknown drug, can consult the guide to determine the names of products which match his unknown.

American Medical Association APhA
535 North Dearborn Street
Chicago 11, Ill. NLM

The Medical Letter on Drugs and Therapeutics. Vol. 1 (Jan. 23, 1963) to date. Biweekly. \$12.50 per year, including binders.

Critical appraisals of new drugs and new clinical findings affecting older drugs are published in a bi-weekly newsletter. Claims for the drugs are evaluated by an advisory board, with particular attention paid to side effects and the possibility for addiction. Cumulative 2-year indexes have been issued for the volumes published through 1962.

Drug and Therapeutic Information, Inc. APhA
305 East 45th Street
New York 17, N.Y.

Pharmindex. Vol. 1 (October 1958) to date. Twice monthly. Annual subscription, including back issues in binder, and one year's service, \$24.00. Renewal rate, \$20.00.

Each issue lists new products which have appeared on the market during the preceding period. Entries are under the proprietary name and furnish name of manufacturer, brief description, indications, contraindications, mode of administration and dosage, forms supplied and price. New dosage forms, new strengths, new packages and name changes are compiled in supplementary lists. With each issue are published cumulative trade-name, nonproprietary-name, manufacturer and therapeutic indexes to the entire year's products. A section "Important Products Pending" refers to new products under investigation, not yet released for dispensing. Pharmindex also publishes review articles about pharmacologic classes of drugs and frequent compilations of specialties available in therapeutic groups. In addition to the monthly index for the current year, there are cumulative trade-name, nonproprietary-name and

pending-product indexes for the back issues. The cumulative manufacturer's index includes new products and changes, but not pending products. The therapeutic index refers to the compilations of specialties under therapeutic classes as well as to entries for individual products.

Skyline Publishers, Inc.
Box 1029 Federal Station
Portland, Oregon

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NOTE: No effort has been made on this occasion to include entries for well-known drug information sources published in the United States. For the titles of these publications, see the American Journal of Pharmacy, January 1957, pages 5-9; also October 1958, pages 349-351. Information about the most recent editions is readily available in publishers' lists and pharmacy periodicals.

U.S.S.R.

Russian Drug Index, comp. by Stanley Jablonski. National Library of Medicine, 1961. 103 pages. 60 cents.

The Index consists of a subject section containing entries for individual drugs arranged alphabetically under broad function groups such as anti-tubercular, autonomic, etc., and a name index containing all synonyms found in the subject section. It results from systematic scanning of the principal pharmacologic and medical monographs and serials published in the Soviet Union from 1950 to 1960, as received in the National Library of Medicine. The source journals and monographs are cited by name; they are other than the reference cited in Drug Information Sources.

Government Printing Office
Superintendent of Documents
Washington 25, D.C., U.S.A.

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NLM

Latin America

Vademecum Internacional de Especialidades Farmacéuticas y Biológicas; V-I 1962. 8th ed. Separately paged sections. \$2.00.

The white section of the Vademecum lists the major drug specialties of pharmaceutical laboratories and reports for each its composition, actions and indications, method of administration, dosage forms, availability of literature, and countries in which it is registered. The yellow section is a therapeutic and pharmacologic index to the foregoing products. The pink section lists all manufacturers' products alphabetically and also lists manufacturers with their addresses and their full product lists. There are 4 editions: Cover, for Colombia, Peru, Ecuador and Venezuela; Curdac, for Central American countries; and separate editions for Argentina and Mexico. The texts are in Spanish. They are distributed through the courtesy of the manufacturers whose products are listed.

J. Morgan Jones Publications, Inc.
P.O. Box 667
Islamorada, Florida, U.S.A.

APhA

TITLES IN PROGRESS

The Drug Information Sources Committee has received word that the following new titles or new editions of earlier titles are being published. Reference is made to the original annotation in the American Journal of Pharmacy when it is possible.

Austria

Austria Codex 1962/1963, compiled by Dr. Otto Zekert. 17th ed. Approx. 800 pages. S. 155.
Österreichische Apotheker-Verlagsgesellschaft AJP Feb. 1957, page 63
Spitalgasse 31/1
Vienna 9, Austria

Belgium

Fiches Documentaires (Produits Nouveaux). 2d series. 150 fr.
Association Pharmaceutique Belge
11, rue Archimede
Brussels 4, Belgium

Canada

- Compendium of Pharmaceutical Specialties. 2d ed. Available July 1, 1963.
\$10.00 until June 1, 1963. Regular price, \$13.00. See entry under Canada
Canadian Pharmaceutical Association
221 Victoria Street, Room 308
Toronto 2, Ontario, Canada

France

- Dictionnaire Vidal 1963. Published in January 1963. \$5.50.
Office de Vulgarisation Pharmaceutique AJP Feb. 1957, page 59
11, rue Quentin-Bauchart
Paris 8e, France

Great Britain

- Current Medicine and Drugs. Periodical. \$6.00 per year.
Butterworth and Co. Ltd.
4-5 Bell Yard
London, W.C. 2, England
also
7235 Wisconsin Avenue
Washington 14, D.C., U.S.A.

India

- Indian Pharmaceutical Guide for Doctors and Chemists. In press. Rs. 16.
Four sections: pharmaceutical manufacturers and their addresses;
proprietary products, pharmaceutical specialties, biologicals with their
composition and prices; laws pertaining to production, distribution and
sale of drugs; miscellaneous reference section.
Pamposh Publications Advt. Eastern Pharmacist,
E-38 Hauz Khas Enclave Feb. 1962.
New Delhi 16, India

Italy

- Repertorio Terapeutico 1963, ed. by Dr. R. Fumi. To be published June
1963. \$9.00.
Organizzazione Editoriale Medico Farmaceutica AJP May 1957, page 174
Via Edolo 42
Milan 5, Italy
L'Informatore Farmaceutico Italiano 1963. \$15.00.
Yearbook of pharmaceutical industries in Italy with monthly supple-
ments. The nature of this publication may have changed since it was
reviewed in AJP May 1957, page 175.
Organizzazione Editoriale Medico Farmaceutica
Via Edolo 42
Milan 5, Italy

Japan

- Review of Clinical Drugs. Revised biennially.
Nippon Kajyo Printing Co. AJP Oct. 1957, page 375
2254, 5-chome, Shiina-machi
Toshima-ku
Tokyo, Japan

Peru

- Vademecum de Especialidades Farmaceuticas por Los Quimicos Farmaceuti-
cos, by Montesinos Ampuero and Jara Echea.
Liberia Internacional del Peru, S.A.
Casilla 1417
Lima, Peru

Spain

- Diccionario Espanol de Especialidades Farmaceuticas. May 1963. 1,200,-
ptas. Annual subscription to Boletin Suplementario del DEDEF, 300,-
ptas.
DEDEF AJP May 1957, page 172
Iztueta, 7
San Sebastian, Spain.

APPENDIX F¹

A COOPERATIVE PROJECT IN NEW DRUG REPORTING

Patricia Graham Bohr² and Katherine Crawford Owen,³ Warner-Lambert Research Institute, Morris Plains, N.J.

(Presented before the Division of Chemical Literature at the 143rd meeting of the American Chemical Society in Cincinnati, Jan. 14, 1963, and submitted for publication to the Journal of Chemical Documentation.)

¹ Not reprinted in this publication.

² Assistant Librarian.

³ Librarian.

APPENDIX G

STATEMENTS FROM THE AMERICAN MEDICAL ASSOCIATION AND THE U.S. FOOD AND DRUG ADMINISTRATION

In the course of preparing this report, a number of organizations were visited. The American Medical Association and the U.S. Food and Drug Administration have submitted the following statements.

THE AMERICAN MEDICAL ASSOCIATION DRUG INFORMATION PROGRAM

MEDICAL COMMUNICATION AND THE ASSOCIATION

January 25, 1963.

The American Medical Association has always maintained as a major part of its program the role of communicating medical information. This program is of two aspects: postgraduate education of the physician and public health education of the nonmedical community.

The task of keeping the physician informed with regard to progress in medicine is a formidable one today in view of rapid advances and specialization. The problem is one common to all the sciences: physical, biological, as well as social. A measure of the success of this scientific communication is the eminent world position of American science and American medicine.

The association has met this challenge through the development of a number of mechanisms. Its Journal of the American Medical Association reaches all physicians in America and countries abroad, bringing original and secondary communications in the basic sciences, medical history, socioeconomics as well as clinical medicine. Similarly, its 10 specialty journals—the AMA Archives—are designed to reach the specialist. Nonserial publications familiar to all physicians are the New and Nonofficial Drugs, the Current Medical Terminology, and the American Medical Directory, to cite a few.

Twice each year, a Scientific Assembly is held, rotating in different parts of the country, bringing the physician in face-to-face contact with his colleagues. The library, one of the largest in the country, provides literature searches as well as facsimiles of articles. To coordinate world medical literature, the association cooperates with the National Library of Medicine to produce the Cumulated Index Medicus. Finally, through the method of ad hoc and standing committees, the association is able to call upon its membership to discuss any problem in medicine where a meeting of the best medical minds is required.

THE DRUG PROBLEM

That the introduction of chemical substances into the body for therapeutic purposes poses numerous problems has long been recognized by the association. As early as 1905, a Standing Committee on Drugs was appointed for the purpose of working toward safety in drugs, correct labelling, enactment of a Food and Drugs Act and informing the medical profession of new forms of therapeutics.

In recent times, however, especially after the Second World War, great advances were made in drug therapy. The association was acutely aware of the need to expand its drugs information program, utilizing the resources of its staff and its membership. Toward this end, the program of the Department of Drugs was divided into main sections: Drug Evaluation and Drug Information.

"Drug evaluation" comprises the activities of the staff, council members and consultants as they pertain to the review and appraisal of available evidence relating to the usefulness and safety of medicinal agents. Reports on these evaluations are first published in the Journal of the American Medical Association and later cumulated in an annual publication, the New and Nonofficial Drugs. The monograph on each drug gives authoritative conclusions based on available

evidence regarding the indications and contraindications of the drug along with its efficacy and adverse effects.

"Drug information" comprises activities of the staff as they pertain to the storing and retrieving of information for use of the evaluators, the physician community and other authorized persons.

PROCEDURE

1. A new drug is considered for evaluation by the Council on Drugs at the time of its submission to the Food and Drug Administration.

2. Each drug is assigned to an evaluator to compile a monograph. (Senior staff member, Department of Drugs—M.D. and/or Ph. D.).

3. The Documentation Section of the department is notified and a bibliography on the drug is compiled for the evaluator.

Information on the drug is requested from pharmaceutical firms (published and unpublished).

4. The evaluator, with the Documentation Section, organizes the material from (3) and sends it to 6 selected consultants in the field.

5. On return of the material, the evaluator drafts a monograph, utilizing the data and opinion of the consultant.

6. The draft of the monograph with the data is referred to a referee chosen from the Council on Drugs for review and for suggestions.

7. The amended monograph is transmitted to the pharmaceutical firm(s) for comment.

8. The monograph is returned to the referee.

9. The monograph is edited by the department staff and referred to the director of the Department of Drugs for review.

10. The council reviews and approves the monograph and its digest for publication in the *Journal of the American Medical Association* or *New and Nonofficial Drugs*.

11. The monograph and digest are submitted to the pharmaceutical firm(s) for final review before publication.

12. At periodic intervals, monographs in the *New and Nonofficial Drugs* are updated.

The evaluation of a drug entails objective review of all available information on the drug. The council utilizes several sources of information: (1) selected published literature; (2) opinion of consultants in the field; (3) reports from the manufacturer; (4) special studies conducted by the department, e.g., Registry of Blood Dyscrasias.

EXPANSION OF THE PROGRAM

The coordination of this information requires the development and expansion of both staff and working tools.

(1) *Drug Names File*.—The development of a drug names file is a continuing activity of the association. A Committee on Nomenclature is maintained under the department, with representatives from the U.S. Pharmacopoeia, World Health Organization, Nordic Pharmacopoeia, French Codex, U.S. Food and Drug Administration and the National Formulary.

Plans are underway to make the file international in scope and to include all names of a given drug and its synonyms.

(2) *Medical Terminology*.—The present subject heading list is being expanded and refined so that the following information, which is presently being indexed, may be reached in depth:

Pharmacological, toxicological and collateral actions of drugs;

Indications and efficacy;

Dosage, forms and mode of administration;

Side effects, adverse reactions;

Contraindications to therapeutic usage;

Relation to other drugs;

Relation to diseases, symptoms and syndromes; and

Antidotes and treatment of toxic and adverse reactions.

(3) *Volume of Information.*—An expansion plan has been worked out in this area. For indexing purposes drugs are divided into three categories:

- Priority one: all commercially available drugs on which monographs are being written by the department staff;
- Priority two: all commercially available drugs on which monographs have been written and published in AMA publications;
- Priority three: drugs withdrawn from the market or eliminated from New and Nonofficial Drugs.

Literature on these drugs is presently being indexed, varying in depth according to the above categories. Pertinent studies and consultations with council members are conducted to determine criteria for selection and expansion of coverage.

At present, about 525 journal issues are scanned, yielding about 1,360 pertinent articles per month. These articles are indexed and routed to the Drug Evaluation staff as they pertain to their area. Expansion of this "minimum program" is being developed.

(4) *Mechanization.*—The association has on its premises an IBM 1401 computer. Studies are presently being conducted for conversion of the indexing and retrieval system from the manual to the mechanized system. The first file to be converted is the comprehensive Drug Names File.

(5) *Personnel.*—During the past 2 years, the association has conducted an intensive recruitment program to attract the most qualified personnel in the country.

The staff has expanded several fold and is presently divided into specialized sections:

Senior staff (M.D. and/or Ph.D.)-----	12
Junior professional staff-----	11
Clerical staff-----	22

Total----- 55 [sic]

(6) *Communication Media.*—The association is making available to the profession its many means of disseminating this information.

- a. Detailed, descriptive statements about new single entity drugs are published in the Journal as soon as practicable after a drug first becomes available. These are called "Preliminary Statements."
- b. Additional information, as it becomes available following the Preliminary Statements are published in the Journal under the council column, "New Drugs and Developments in Therapeutics."
- c. A monograph is prepared for each drug for publication in the New and Nonofficial Drugs, issued annually by the association. A change in format and expansion of coverage are planned for this guide.
- d. Each monograph appearing in the Journal or the New and Nonofficial Drugs will be prefaced by a summary of council opinion, incorporating comparisons with older similar drugs whenever possible.
- e. Quarterly indexes to all council statements will be published in the council column in the Journal.
- f. A Questions and Answer Service is provided for physicians who require information on drugs.

The aim of the program is to bring to the medical community authoritative, pertinent and timely information with regard to drug therapy. The American Medical Association is mobilizing its membership and resources to facilitate this information feedback among medical scientists, an operation vital to the health of the Nation.

February 1, 1968

UNITED STATES GOVERNMENT MEMORANDUM

FOOD AND DRUG ADMINISTRATION

To: Dr. Frank B. Rogers, Director, National Library of Medicine, Public Health Service, Bethesda, Md.

From: Deputy Commissioner of Food and Drugs

Subject: Nature and Magnitude of Drug Literature

We appreciate the opportunity to contribute to your report on the "Nature and Magnitude of Drug Literature" for Senator Humphrey's Subcommittee on Reorganization and International Organizations.

Our medical staff is aware of the problems of the researcher and the practicing physician from its own experience in trying to keep abreast of the drug explosion of the last 20 years and its literature, especially on untoward effects.

Our library began in 1948 to systematically index drug reaction reports. Our coverage of the literature has gradually expanded until at present we review approximately 250 titles in experimental and clinical pharmacology and medicine. These comprise the majority of the English-language journals in these fields. Included are abstract journals which keep us in touch with important foreign-language reports.

There is scarcely an issue that does not contain at least one report of adverse effects. A number—such as the *British Medical Journal*, which routinely gives wide coverage to this subject, and the *Journal of the American Medical Association*—may contain as many as 12 items on drug reactions per weekly issue. We accumulate an average of 250 such references per month. However, these comprise only those articles that are so identified by title or by scanning of text. We know there is a great deal of pertinent information buried under broad, obscure, or seemingly irrelevant titles, but our limited facilities have not permitted in-depth coverage of these articles. We are concerned that some may contain the first suspicions of hitherto unrecognized manifestations of drug reactions, which, brought to light, could speedily be called to the attention of the medical profession.

In spite of the time we devote to screening the drug literature, we have been finding it increasingly difficult to keep abreast because of its volume. This problem is especially acute in regard to foreign coverage. During the last 5 years pharmaceutical research in Europe has made unprecedented strides. This is now being reflected in the foreign literature. We are not aware of any existing estimate of the number of articles on drug toxicity that appear annually in the world medical literature. However, in a recent monthly issue of the *Index Medicus* we counted, roughly, 325 reports. We further noted that more than two-thirds of the references were in foreign-language journals. This figure is a minimum estimate since the *Index* does not cover the entire world literature and includes references to leading articles only. Our experience has shown that many drug reactions are reported in the form of "letters to the editor" as well as in question-and-answer columns.

The total quantity of medical literature, the lack of ready accessibility of many of the foreign journals, the delays in obtaining translations or abstracts, and the inevitable time lag between the occurrence of a drug mishap and the appearance of a published report increase the burden on the physician and health official responsible for drug safety. The thalidomide incident underscored this fact. But even before that physicians were expressing the frustration of all scientists in trying to cope with the literature explosion. Robert Moses, in his report on "Diseases of Medical Progress" (*Clin. Pharm. Ther.* 2:446-522, 1961), expresses it in his introduction:

* * * It would be a gross presumption to assume that a single author could read all of the literature which would bear upon this subject. It is appreciated that the large body of foreign-language literature is unfortunately neglected, and it is equally understood that the number of unrecorded observations of iatrogenic disease exceed by far those which appear in contemporary publications. However, despite these omissions, the amount of literature reviewed has become increasingly voluminous.

He concludes:

At times the broadening expanse of medical knowledge seems overwhelming. To keep abreast of trends in diagnosis and therapy appears to be an impossible undertaking. An individual lifetime seems inadequate. Yet it is this continuing intellectual challenge that generates the vitality which is the very essence of the practice of medicine.

In addition to the open literature, there is a body of available toxicological data to be considered whose format and method of dissemination are such that it is not likely to come to the attention of the physician or other interested or responsible individuals in the normal course of his "keeping up with the literature." We have in mind, for example, the mortality data on drug poisonings and therapeutic misadventures compiled by the U.S. National Vital Statistics Division. At present these data are buried under broad headings in lengthy tables that include all causes of death and are published in special reports that may not come to the attention of many clinicians. The medical community is taking steps to try to alleviate the problem.

For many years the U.S. physician has had special tools to aid him in his selective use of new drugs. The most important of these are the manufacturer's drug brochure and the monographs on new drugs that are initially published in the Journal of the American Medical Association and subsequently compiled into an annual volume, New and Nonofficial Drugs. Also to be mentioned are the AMA Council on Drug's periodic drug evaluations, published in the Journal of the American Medical Association.

In recent years a number of new weekly services have been added. Timeliness and brevity are their selling points. These include the Medical Letter on Drugs and Therapeutics, which features up-to-date comparative evaluations of new drugs, and Clin Alert, which consists of a series of brief abstracts that alert the physician to new or unusual types of drug reactions.

Another significant development is your MEDLARS project. Your plan for accelerating the rate of indexing the world literature and disseminating it by field of interest should go far to solve many of the problems that plague us now with the foreign literature. Your making available on a continuing basis all the information you collect on drug toxicity will be of material assistance to us.

JOHN L. HARVEY.

The total quantity of medical literature, the lack of ready availability of many of the foreign journals, the delay in obtaining translations of abstracts, and the inevitable time lag between the occurrence of a drug reaction and the appearance of a pertinent report through the medium of the physician and health official responsible for drug safety. The following features were suggested by all members of the committee who expressed the translation of all literature in their field to our "Journal of Medical Progress" (Chm. Pharm. Ther. 3:145-150, 1961), expressed in his introduction:

It would be a gross presumption to assume that a single author could read all of the literature which would bear upon his subject. It is appreciated that the large body of foreign-language literature is inadequately selected and is equally understood that the number of translated observations of hazardous illness exceed by far those which appear in contemporary publications. However, despite these obstacles, the amount of literature reviewed has become increasingly voluminous.

APPENDIX H

STATEMENT BY NATIONAL LIBRARY OF MEDICINE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
PUBLIC HEALTH SERVICE,
Bethesda, Md., April 23, 1963.

Senator HUBERT H. HUMPHREY,
U.S. Senate, Washington, D.C.

DEAR SENATOR HUMPHREY: I am happy to add my comments to the report which the Library has prepared on behalf of your committee. I should like to take the opportunity briefly to describe the function of libraries in relation to drug information, and more particularly to mention some of the contributions which the National Library of Medicine has made toward the solution of the admittedly complex problems surrounding this subject.

To the three classes of resources supporting national drug research programs—facilities, manpower, and finances—there should be added a fourth, information resources. The library system may be considered as the institutional form through which our society has traditionally organized these information resources, and it is only in recent years that this country has become aware of their economic significance. Demonstrations that libraries are a source of national wealth, rather than a provocation of administrative outlay, have been difficult to make. It is only when we start to compare the relatively modest costs of conventional libraries with the staggering costs of proposed alternative and substitute systems for the management of scientific information that the relative economy of library systems becomes apparent.

Libraries collect, organize, store, and disseminate the published literature. Those concerned with the drug literature are of many types: medical school libraries, libraries at schools of pharmacy, hospital libraries, and libraries representing industrial and independent research and development organizations, including notably the special libraries of pharmaceutical firms. For all of these libraries, the National Library of Medicine stands as an ultimate national resource. The Library functions which most directly affect the management and availability of the published literature related to drugs may be divided as follows: acquisition, bibliographical control, servicing the collections, cooperative enterprises, and finally, the MEDLARS system.

Acquisitions.—With long years of experience behind it, the National Library of Medicine has developed its skills for the identification and collection of all types of scientific publications from every corner of the world. At the National Library of Medicine 26 skilled persons devote all their time and efforts to this function. The Library's published listing, *Biomedical Serials, 1950-60*, provides current evidence of the breadth of the global acquisitions policy which has been conducted by the Library for over 80 years. By virtue of its comprehensive acquisitions policy, the Library guarantees the presence in the United States of at least one copy of any publication within its defined scope.

I am tempted to digress for a moment on the statistical magnitude of the published drug literature. *Biomedical Serials* lists 5,711 serials which contain original reports; these have been selected from 19,000 serial publications of all types received by the Library. The *World List of Pharmacy Periodicals*, included as appendix C of our report, lists 935 journal titles of which only 339 are currently published and classified as "scientific." Counts of serial titles in our opinion represent an unsatisfactory measurement of the magnitude of the drug literature problem; counts of the papers conveying new information are far more significant. This is pertinent in evaluating the Library's indexing program. The 2,200 journal titles currently covered by the *Index Medicus*, selected from the larger population, represent about 75 percent of the original writings reporting new information.

Bibliographical Control.—Since 1876, the Library has matched these global collecting policies with acceptance of the responsibility for indexing the contents of the literature. Extensive bibliographical undertakings, the *Index Catalogue of*

the Library of the Surgeon General's Office and the Index Medicus, have played a major role in organizing the literature of drugs. This indexing tradition has been carried on without interruption to the present time, and serves as the core of the Library's new MEDLARS system. Made possible by it is a host of other bibliographical activities. For example, the Library's published Psychopharmaca (1958) assembled references to all articles in this newly developing area. Another example is the Library's annual Bibliography of Medical Reviews, which notes the appearance in the world literature of thousands of critical review papers synthesizing new knowledge, including, of course, that relating to drugs, pharmacology, and experimental therapeutics.

Servicing Collections.—This classic bibliographic tradition has been matched by a tradition of free lending of Library materials thus indexed. Indeed, were it not for the Index Medicus, it is highly probable that thousands of researchers in the United States would not locate references to and borrow copies of original drug research papers published throughout the world.

The Library lends its materials in the form of hard copy photoduplications of journal articles. Last year it made 125,000 such loans. This photoduplication load approximates 3,000,000 pages per year. The libraries of medical schools, where much pharmacological research is concentrated, account for about 14 percent of this total, and industrial research libraries, including the libraries of the pharmaceutical industry, account for another 13 percent. By its guaranteeing national availability in the form of loans of almost the entirety of world scientific publication related to biomedical science, the NLM plays an important role in supplying drug researchers with the international literature.

Cooperative Enterprises.—By tradition the NLM has engaged cooperatively with other interests concerned with the management of scientific information. This tradition of international cooperation has carried down to the present. The Library has been actively represented at UNESCO conferences and committee functions concerned with the abstracting and indexing of the biomedical literature, with activities of the Abstracting Board of the International Council of Scientific Unions, and with the International Federation for Documentation. On a national level, the Library cooperates with both public agencies and private groups. Thus, it has informal operating agreements with the other two national libraries, the Library of Congress and the National Agricultural Library, covering the division of collecting and servicing responsibilities. The Library's Director, by law, is an ex officio member of the Science Information Council of the Office of Science Information Services, National Science Foundation. The Library services generously the requirements of programs in scientific fields of every Federal agency concerned with biomedical activities.

The Library has a solid record of coordination and cooperation with private groups in endeavoring to improve access to the published drug literature. Thus, together with representatives from Chemical Abstracts and Biological Abstracts, it has participated in planning sessions of the Literature Committee of the Pharmaceutical Manufacturers Association, as this committee has deliberated industrial needs for better information services. It has participated in planning meetings with Chemical Abstracts, Biological Abstracts, and Excerpta Medica for the ultimate purpose of reducing duplication, increasing coverage, and attaining practicable compatibility among the systems.

MEDLARS.—The Library's Medical Literature Analysis and Retrieval System (MEDLARS) is expected to phase into operations starting January 1964. This system, which computerizes the indexing functions performed by the Library, is expected to have wide national implications. A brief review of its capabilities would be pertinent. First, MEDLARS will permit the Library to increase its indexing coverage of the literature from 150,000 papers per year to 250,000 by 1970. Second, these papers will be indexed at the depth of an average 8-10 subject tags. Third, in addition to printing the Index Medicus and its derivative works, the system will have 2 other fundamental capabilities providing 50 concurrent listing services for as many research fields, and providing demand search and retrieval services at a high level of specificity. It gains enormously in its national significance from the fact that it is concerned with a vast body of open published literature for open use, and that it is located in the heart of an established library system which has the potential of matching the retrieval capability with the supply of hard copy for items retrieved.

By far the most significant consideration, however, is the Library's determination to decentralize the MEDLARS system at the earliest practicable moment. By decentralization is meant the duplication and conversion of tapes and programs to permit multiple institutions, public and private, to accomplish the same searches

as will be performed in the Library. Access to the literature will thereby be materially enhanced.

By its decision to decentralize the searching capabilities for MEDLARS tapes, the Library will move to capitalize on the public funding of this national asset. This means that other Government agencies and research installations, medical schools, and private centers of drug research, and the pharmaceutical industry generally will have ready access to this searching potential. With the establishment of decentralized search centers, the power of producing special listing services for various fields of research will be multiplied enormously. The Library looks to this development to keep every pharmacologist, pharmaceutical chemist, and clinician currently alert to the literature of concern to his field of investigation. The Library believes that with MEDLARS it is moving into a new era of scientific bibliography. The classic library functions, collection, organization, storage, and servicing of the published literature, which are indispensable to the management of the scientific record, will be preserved; the institutional forms through which these functions are performed will of necessity develop with advancing technology. These will make possible a more effective management of published drug information.

Additional NLM Interests.—As a national library, with a statutory responsibility for the dissemination of health and medical information, the National Library of Medicine is deeply concerned with the health and service capabilities of other medical libraries. As the MEDLARS system becomes operative, the need for the strengthening of medical library resources and services poses a critical problem; the full benefits of the MEDLARS system to the American medical establishment cannot be realized without the rehabilitation of local medical libraries. Over a long period of time, local resources have proved to be inadequate to provide for the normal development of medical libraries at rates commensurate with the increase in research and educational requirements. The Library believes that a comprehensive program of Federal support is essential to rehabilitate the medical library system. This will require assistance for programs of education and training, for the building of new library facilities, for the augmentation of library collections, and for research and development in library technology. Only through such extensive exploitation of our medical libraries can the country's medical research effort be supported with information services at a level adequate to the national purpose.

Sincerely yours,

FRANK B. ROGERS, M.D.,
Director, National Library of Medicine.

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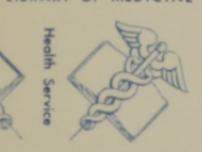


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