

OSLER LIBRARY NEWSLETTER

McGill University, Montreal, Canada

No. 76-June 1994

Osler and Drugs

In the course of his lifetime William Osler was periodically labelled a "therapeutic nihilist". The charge is dealt with by Harvey Cushing, whose life of Osler may well be read not only as outstanding medical biography, but also as fine literature.⁽¹⁾ On the subject of Oslerian materia medica, Cushing presents two aspects. On the one hand, he writes, "Like many other pathologists, he was... imbued with the futility of most of the drugs in common use" (p. 166), and adds that "his only weak spot was in therapeutics, if a healthy scepticism concerning drugs may be regarded as a weakness" (p. 340). On the other hand, he "was a good therapist ... and used drugs not empirically, but scientifically" (p. 268).

The basis for the "nihilist" charge was clearly in Osler's requirement that useful drugs have known and specific actions, and that they be offered in prescriptions that ordered single drugs. In a lecture in 1907 at the Philadelphia College of Pharmacy and Sciences Osler is reputed to have recognized only 13 drugs that had significant value in medicine.⁽²⁾ The accompanying article by David Macht throws considerable light on Osler's preferred therapeutic agents, although the list of commonly prescribed drugs for patients he saw at home extended upwards to fifty.

Osler began his practice contemporaneously with the development of modern pharmacology, in a period when inert or toxic chaff was being separated from therapeutically useful grain. One must conclude that Osler, although not directly involved in scientific reevaluation of therapeutics as practised in a growing number of medical school laboratories, had sensed the basic principles of the new discipline, thereby deserving Macht's description of him as a "pioneer in rational pharmacology".⁽³⁾

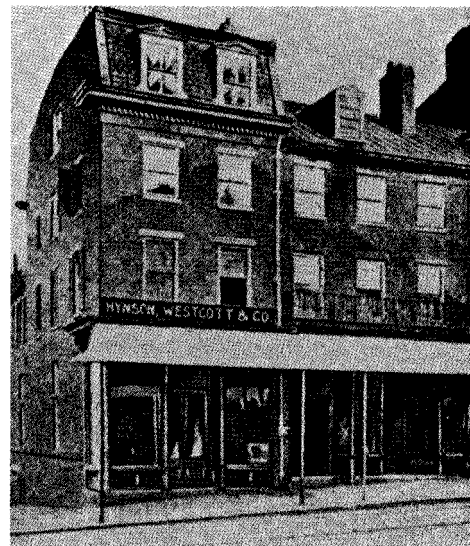
-Theodore L. Sourkes

OSLER'S PRESCRIPTIONS AND MATERIA MEDICA



he present study is a result of a happy concatenation of three circumstances. Firstly, I had the good fortune to be a member of the last class (the class of 1906) at the Johns Hopkins Medical School which studied under the late William Osler. Secondly, until the retirement of Prof. John J. Abel in 1932, I was for many years a lecturer in pharmacology at the Johns Hopkins Medical School; and in that capacity I not only lectured on pharmacodynamics but gave a separate course of lectures on pharmacotherapy and prescription writing. Thirdly, I have been connected with the firm of Hynson, Westcott & Dunning for almost ten years as director of pharmacological and medical research; and in that capacity I have had an opportunity to study the prescription files of the retail department there. The retail department of this corporation is well known as one of the most ethical and scientific pharmacies in the country, and in its files can be found prescriptions written by the most eminent American physicians.

In as much as I have always been interested in the development of prescription writing, I have made a careful study of literally tens of thousands of prescriptions in the old files of this pharmacy and analyzed them in respect to their form; that is, grammar, spelling, use of Latin, etc.; in respect to their pharmaceutical accuracy as to materia medica, dosage, incompatibilities, etc.; and also in respect to their rationale. This investigation, which I hope to publish later, led to a discovery of special interest. As I systematically perused the files of prescriptions I came occasionally upon a prescription written by Doctor Osler. It is well known that Osler did most of his medical work at the Johns Hopkins Hospital, and that outside its walls he saw but few patients except in consultation. Consequently, very few prescriptions in Osler's own handwriting are in existence. It happened, however, that Osler lived for years on the southwest corner of Charles and Franklin Streets, in Baltimore, directly opposite the pharmacy of Hynson, Westcott & Dunning, then located on the southeast corner of the same intersection. Osler was a frequent visitor at the pharmacy and on



Original pharmacy of Hynson, Westcott & Co.
Southeast corner of Charles and Franklin Streets.

friendly terms with the owners and clerks. As a result, whenever he did write what we may call an "extramural" prescription for some patient who visited him at his home office, it was almost invariably filled at the pharmacy of Hynson, Westcott & Dunning. I decided, therefore, to search through the prescription files covering the period of Osler's residence in Baltimore, a period of about eight years, and collect all of his prescriptions for critical study. The result of this research, presented in this paper, is of considerable interest from the standpoint of medical and pharmaceutical history because of the light it throws on Osler's attitude towards drugs and on the subject of so-called therapeutic nihilism.

To celebrate the meeting of the XIIIth International Congress of Pharmacology in Montreal from July 24 to July 30 of this year, the Osler Library Newsletter devotes this issue to reprinting a classic article on Osler's attitude to drugs. David I. Macht's essay on "Osler's prescriptions and materia medica", first published in the Transactions of the American Therapeutic Society for 1936, is introduced here by Dr. Theodore Sourkes, an eminent research pharmacologist and long-time member of the Library's Board of Curators. Congress participants as well as regular readers of the Newsletter are sure to enjoy this lively refutation of the charge of "therapeutic nihilism" long levelled against Osler.

1. H. Cushing. *The Life of Sir William Osler*. London: Oxford U. Press. 1940.

2. L.G. Rowntree. *Osler at the College of Pharmacy and Sciences of Philadelphia*. Bull. Johns Hopkins Hosp. 101: 306-310 (1957).

3. D.I. Macht. *Osler's prescriptions and materia medica*. Trans. Am. Therap. Soc. 35: 69-85 (1936).

Table 1
Materia Medica

Acacia, 1	Elixir, ferri quinae, et strychninae phosphatum, 2	Potassii iodidum, 6
Acetphenetidinum, 1	Ergota (Fraser's tablets of ergotin in aa gr. l), 23	Santoninum (trochisci), 1
Acidum boricum, 1	Extractum belladonnae, 1	Sodii bicarbonas, 2
Amylis nitris, 1	Glandulae suprarenales, 1	Sodii phosphas, 3
Antipyrina, 1	Glycerinum 2	Spiritus aetheris compositus 3
Aqua	Glycerylis nitras, 12	Spiritus ammonii aromaticus, 3
Aqua rosae, 2	Hydrargyrum cum creta, 1	Spiritus camphorae, 1
Argentii nitras, 1	Hydrargyri chloridum mite, 1	Strychninae sulphas (pills: 1/60 gr., 5; 1/32 gr., 1; 1/30 gr., 1; 1/100 gr., 1)
Atropinae sulphas, 2	Liquor calcis, 1	Sulphonethylmethanum (trional), 1
Bismuthi subcarbonas, 1	Liquor potassii arsenitis 2	Sulphur praecipitatum, 1
Calumba (cordial), 1	Opii pulvis, 1	Syrupus ferri iodidi, 3
Camphora, 1	Phenol liquefactum, 1	Thyroideum (tablets, 1; powdered gland, 1)
Carbo ligni, 1	Phenylis salicylas, 2	Tinctura aconiti, 2
Cinchona calisaya (elixir of F. and C.), 1	Pilulae ferri carbonatis (Blaud's pills), 5	Tinctura iodi, 1
Cocaina (sulphate), 1	Pituitarium (dried gland powder), 1	Tinctura nucis vomicae, 4
Colchicinae (tablets: 1/100 gr.), 1	Potassii bromidum, 3	Tinctura opii, 1
Creosotum, 1		
Digitalis (digitalin, Merck), 1		

Table 2
Compound Prescriptions

I. Pulvis opii et ex. belladonnae (suppositories)
II. Potassii iodidum, calumba cordial, and water
III. Salol and phenacetin
IV. Sulphur precip., camphor, acacia, liquor calcis, and aqua rosae
V. Phenol, tr. iodi, glycerin, and water (internal use)
VI. Tablets of bismuth and charcoal
VII. Powders of antipyrin and salol
VIII. Creosote, glycerin, and water
IX. Acid boric and aqua rosae
X. Spiritus camphorae and tr. aconiti (internal use)

Description of Osler's Prescriptions

Among the 200,000 prescriptions filed in this pharmacy from 1898 to 1906, I found 130 written by Osler. These, carefully separated and analyzed, were found to include one or more prescriptions of fifty different types. It was interesting to note that the great majority of the entire number were simple prescriptions; that is, called for but a single ingredient. There were found only ten compound prescriptions; i.e., those calling for a combination of two or more ingredients. Fifty different drugs or chemicals were mentioned in this collection of Osler's prescriptions. The subjoined Table 1 gives a list of all the drugs prescribed. The numerals following the names of these drugs indicate how often each of the fifty was recommended in the whole series of 130 prescriptions. Most of the prescriptions were written in ink; only occasionally was one jotted down in pencil. The majority were written on sheets torn from small scratch pads of plain white or buff paper. Rarely did I find one written on a regular prescription blank bearing Osler's name and address at the top. Most of the prescriptions were signed only with the initials, "W. O." Osler seldom wrote his name in full. For the most part, his penmanship was quite legible. In nearly every case the whole prescription, except the signature, was written in Latin. The directions for use of the prescribed agent were invariably specified in English. There were few grammatical errors. From the standpoint of Latin materia medica the drugs mentioned were correctly designated. One curious exception to this was a prescription calling for Blaud's pills, described by Osler as *Pilulae Ferri Sulphatis* instead of *Carbonatis*. For reasons of economy it is impossible to reproduce all the Osler prescriptions I have

collected, but I have selected for copying a sufficient number to give an idea of Osler's style, the type of prescriptions he wrote and the drugs he employed.

Perhaps the most striking feature about this collection is the fact that, in contradistinction to so-called compound prescriptions, the great majority were simple prescriptions and recommended only single ingredients. In every case the single ingredient prescribed was a drug the pharmacological properties of which were pretty well known even thirty or forty years ago. Thus, for instance, Osler prescribed *nux vomica*; the composition of this drug was generally known and the pharmacological action of its alkaloids was well understood by all cultured physicians. The same is true of *colchicum*, which Osler frequently prescribed for gouty conditions. The same is also true of *Blaud's pills*, of *atropine*, *phenacetin*, *aconite*, *ergot*, *nitroglycerin* and all the other drugs he prescribed. In the whole collection there were found only ten compound prescriptions and the ingredients of these ten are set forth in Table 2. Here I class such simple combinations as those of *salol* and *phenacetin*, *bismuth* and *charcoal*, *boric acid* and *rose water*, none of which would be regarded as a strictly compound prescription at the present time.

Figure 1 shows a prescription for *nux vomica*, often ordered by Doctor Osler. Figures 2 and 3 are two of Osler's simple prescriptions calling, respectively, for compound spirits of ether and a preparation of *colchicum*. Note that in Figure 3 the prescription is written on a regular blank bearing Osler's name and address. Also observe his signature, the characteristic initials instead of his full name.

Another interesting feature may be noted regarding the drugs of Osler's choice. In 1916, Prof. Victor Robinson, Editor of the *Medical Review of Reviews*, published a valuable symposium. Basing his query on the well-known statement of Dr. Oliver Wendell Holmes, in the "Autocrat of the Breakfast Table," that we could well dispense with most drugs if we would only retain the five big ones in the whole list, he asked leading American physicians and pharmacologists to select what they considered the five most important drugs in the United States Pharmacopeia. The majority of answers received by Professor Robinson listed the five most useful and important of all drugs as follows: (1) opium, (2) digitalis, (3) quinine, (4) mercury and (5) ether. A glance at his *materia medica* in our collection (table 1) reveals that Osler employed each of the Big Five. Of course, any one who has had the good fortune to study under or come in contact with him at the Johns Hopkins Hospital knows very well how enthusiastically and extensively Osler prescribed all five of these drugs.

Figure 4 [Ed. note: figure not reproduced] is an order for a preparation of digitalis. This is one of the rare prescriptions written in pencil. Figure 5 is a simple prescription for tincture of opium, the most useful of all drugs, and Figure 6, an order for a mixture of chalk and mercury.

It is interesting to note, in studying Osler's simple prescriptions, that he employed three kinds of endocrine products, namely the thyroid, suprarenal and pituitary glands. These were to be administered orally in the form of powder or tablets. Of course, it is well known that Osler was one of the first to become enthusiastic about the

treatment of cretinism with thyroid preparations; and we are all familiar with the picture, frequently reproduced in textbooks, of the infant whom Osler treated in this way. Figure 7 is an order for thyroid extract written on a regular prescription blank with Osler's name and address at the top, and signed with his initials.

Discussion

This analysis of our collection of Osler's prescriptions logically leads to a discussion of his materia medica in general and of the unfortunate sobriquet of "therapeutic nihilist," often applied to William Osler both by his contemporaries and posterity. Osler's knowledge of drugs and his use of them certainly lent no support to this term. Even in the comparatively small number of his prescriptions that I have collected fifty different ingredients are mentioned. If we

turn the pages of his "Practice of Medicine" (the edition of 1906, which was my textbook when a student), we find that Osler mentions 170 different drugs although he does not recommend all of them. The list includes: (1) drugs acting on the cardiorenal system, (2) purgatives, (3) diuretics, (4) anthelmintics, (5) opiates and other narcotics, (6) antipyretics, (7) tonics, (8) hypnotics, general anesthetics and alcohol, (9) antiseptics, (10) acids and alkalis, (11) powerful alkaloids and other active principles and (12) a large number of miscellaneous drugs, including metallic salts, antitoxins, vaccines, etc.

We can understand why Osler was frequently misnamed "therapeutic nihilist" only when we consider his attitude towards therapeutics and his method of prescribing. Osler invariably preferred to prescribe only such single and specific

drugs with the pharmacological action of which he was familiar; in other words, he was a rational pharmacotherapist, in marked contradistinction to the misguided polypharmacists or prescribers of shotgun prescriptions of his own day as well as that of his predecessors and perhaps — of his successors. Figures 8, 9 and 10 illustrate the types of compound prescription Osler wrote. Here we have, first, an order, written in English, for a simple combination of antipyrin and salol; then, a dermatological prescription calling for a lotion containing sulphur, camphor, lime water, rose water and gum arabic; and, finally, an order for a mixture or solution of creasote in glycerin and water. To appreciate this better, we need only compare some of Osler's prescriptions, reproduced herewith, with the following prescriptions, written not by cheap and obscure practitioners but by some of the leaders of the medical profession in Baltimore — men who were

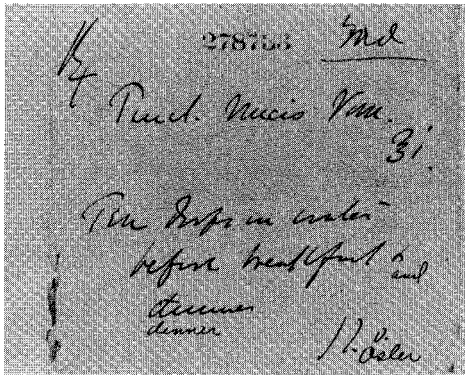


Figure 1

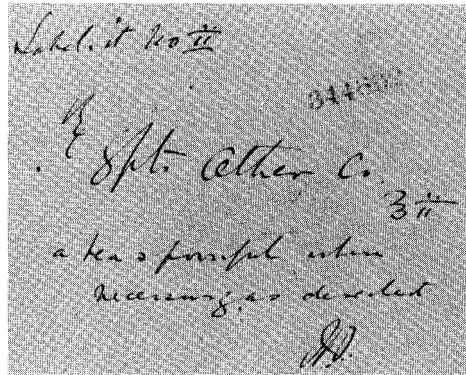


Figure 2

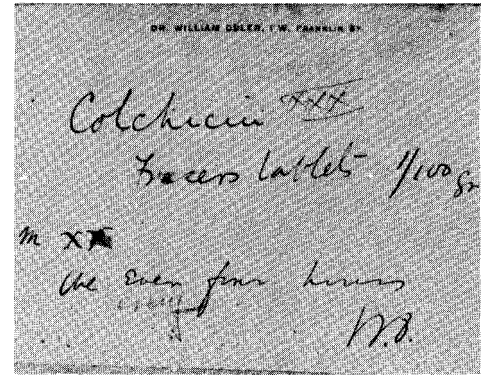


Figure 3

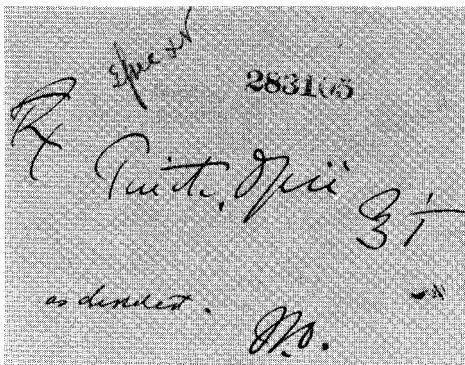


Figure 5

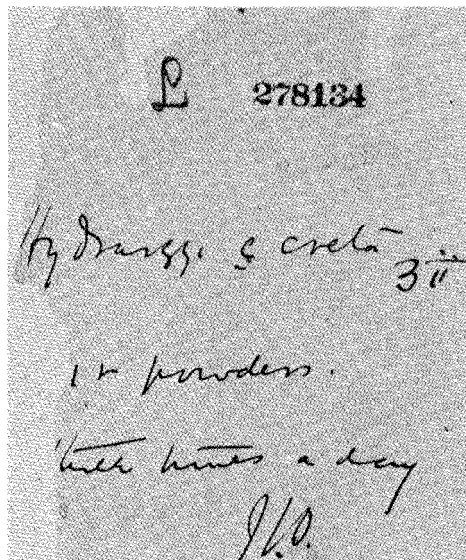


Figure 6

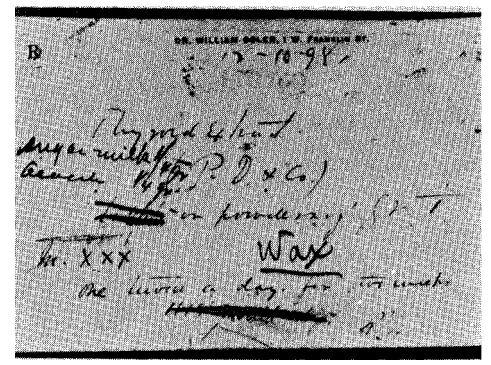


Figure 7

colleagues of William Osler. A glance at a few of these shotgun prescriptions reveals at once the difference between Osler's attitude towards pharmacotherapy and that of the majority of physicians of his time. Figure 11 is a prescription written by one of Osler's distinguished colleagues, which calls for a mixture of quinine hypophosphite, hydrastine, euonymin, strychnine, hydrocyanic acid, bichloride of mercury and arsenious acid. Figure 12, a compound prescription written by another of Osler's contemporaries, is notable not so much for the number as for the extraordinary character of its ingredients. It is an order for cocaine hydrochloride, extract of cannabis indica, quinine salicylate and acetanilid in capsules for internal administration. Figure 13, a prescription written by a third leading Baltimore practitioner, is an order for a combination even more preposterous from the standpoint of modern pharmacodynamics. This prescription calls for a mixture of opium syrup, fluid extract of belladonna and the juice of hemlock. I could easily reproduce a dozen more such shotgun prescriptions with the number of ingredients ranging from three to fifteen but these will suffice to bring out the difference between the pharmacotherapy of

Osler and that which was more prevalent in his time.

It was this reserve and aversion to the prescribing of chemicals or drugs with the action of which he was not thoroughly acquainted that earned Osler the title of "therapeutic nihilist" and this repugnance on his part to irrational concoction containing a multitude of obscure ingredients really marked the beginning of a new era in medicine, the era of modern rational pharmacotherapy. In Osler's day the status of scientific experimental pharmacodynamics was not yet well developed and little or nothing was known concerning the pharmacological action of drug combinations. For this reason, Osler could not honestly and logically write compound prescriptions or recommend combination of drugs and the simple prescription is therefore predominant in our collection. The same was true of many of his students, particularly of his most eminent pupil and admirer, William Thayer.... Dr. Thayer's prescriptions, well known as models of neatness, simplicity and therapeutic rationalism, were written in the metric system of which he was an ardent advocate.

Thus a study of Osler's materia medica and prescription writing reveals the fact that he was not a therapeutic nihilist at all. On the contrary, he prescribed a great many drugs and made mention of many more. He was a pioneer in rational pharmacotherapy. However, because in his time pharmacology was only in its infancy Osler realized the inadequacy of the knowledge then prevailing concerning the action of drugs and therefore prescribed only chemical agents the physiological action of which had been sufficiently demonstrated. He detested the irrational vagaries and mystic combinations of polypharmaceutical nature recommended by his contemporaries and it was this trait that set him apart from them as a sort of radical and gave him the unsavory epithet of "therapeutic nihilist." As a matter of fact, such an attitude was a vital link between the scholasticism of the past and the scientific medicine of the present.

The recent advances in pharmacology cannot be attributed exclusively to the isolation of active principles and a detailed study of the physiological effects of old and new chemicals. Among the greatest discov-

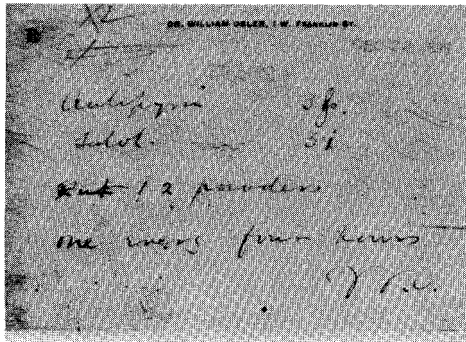


Figure 8

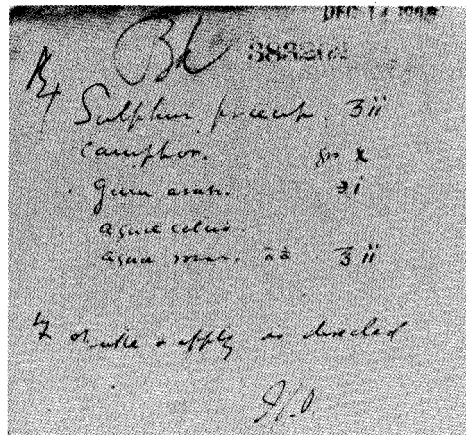


Figure 9

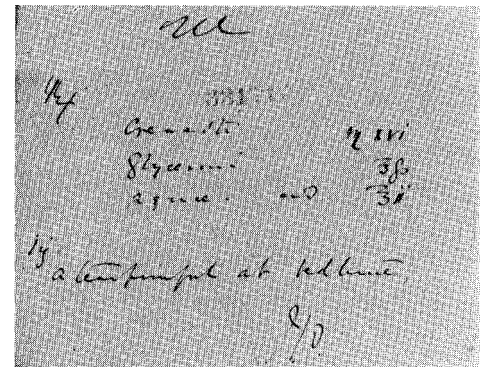


Figure 10

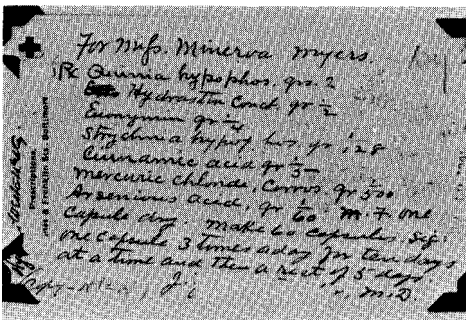


Figure 11

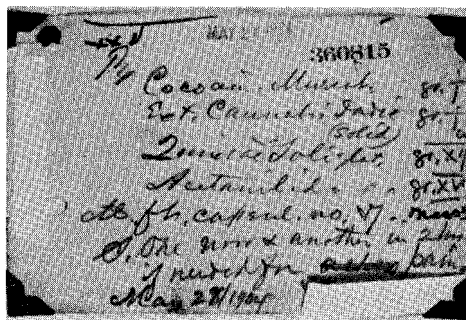


Figure 12

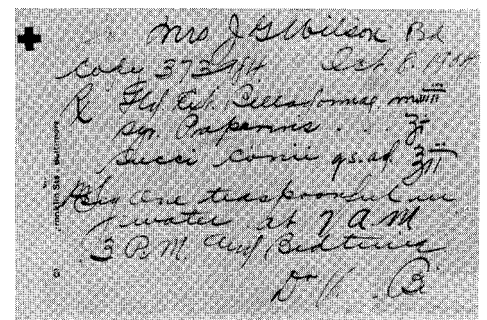


Figure 13

eries of modern medicine must be reckoned the findings made concerning the interaction of various pharmacodynamic agents when administered either in combination with each other, or in immediate succession, one after the other, and particularly the phenomena of pharmacological synergism and antagonism. I discussed these in detail elsewhere (*American Druggist*, 1934, 90, 46). A study of what has sometimes been termed "the problem of two or more" in connection with drugs has led to some of the most valuable contributions of modern rational pharmacotherapy and is also of fascinating interest when examined from the historical point of view. Such an exercise enables the student of medicine and pharmacy to understand more clearly the evolution of prescription writing from ancient polypharmacy and kakopharmacy, through the periods of pharmaceutical and therapeutic superstition and mysticism, to the reactionary age of therapeutic nihilism beginning with Osler and followed by the rise of modern experimental pharmacology and leading to the gradual development of rational pharmacotherapy in our day. Osler's persistence in prescribing only single ingredients of well-known potent drugs marked the logical transition from the therapeutic obscurantism and mysticism of the past to the modern rational prescription writing of the present; and I am confident that my modest estimate of his *materia medica* and prescription writing would meet with the same approval from Doctor Osler, were he living today, that he accorded one of my earlier publication....

Eight hundred years ago there lived in Cairo a great physician, Moses Maimonides, who was also regarded by his contemporaries as a sort of therapeutic nihilist. Maimonides believed in *Vis Medicatrix Naturae*, or the healing power of Mother Nature, in properly balanced rest and exercise, in dietetics, in the beneficial effect of sunshine and the judicious use of specific drugs, the action of which he understood. In one of his treatises, he wrote as follows: Now, most physicians are greatly in error in that they think that medication strengthens the health: it weakens and perverts it: and for this reason hath Aristotle said that most of the patients who die do so through the medicines of physicians. When interference of the physicians is indicated, his task should be to sustain the strength of the patient and to promote Nature in her efforts a repair. Most physicians, however, err in their treatment; instead of endeavoring to assist Nature, they weaken the body with their prescriptions. "In letter and in spirit his quotation exactly expresses the views on therapeutics held by Osler eight centuries later. He also asserted the importance of *Vis Medicatrix Naturae*, of hygienic measures, of dietetic therapy, properly balanced rest and exercise, of sunshine and of the judicious employment of scientifically studied medicaments. His so-called therapeutic nihilism was merely another spelling for therapeutic rationalism and marked the dawn of modern scientific pharmacotherapy. Although Maimonides became the greatest physician of his time and the court physician of Saladin, the most famous of sultans, and his services

were sought after by Richard the Lion-hearted, his advanced ideas on *materia medica* and the practical employment of drugs were obscured by the succeeding dark ages. It is only now that he is regarded as the leading physician of mediaeval Arabic and Hebrew medicine, and his views on therapeutics are recognized as marking a distinct epoch in the history of medicine. Let us hope that the modern era of rational therapeutics, ushered in by William Osler, may not be similarly hampered.

There are sinister powers of darkness, prejudice, racial hatred, mass hysteria and exaggerated egotism stalking abroad and, amazing as it may seem, aspersions are actually being cast on the value of the medical contributions of such men as Jenner, Koch, Virchow, Ehrlich, Neisser and von Behring. I cannot refrain from concluding with a fervent prayer for more power to such organizations as The American Therapeutic Society, which carries on the teachings and ideals of humanists and scientists of Osler's type.

-David I. Macht

FRIENDS OF THE OSLER LIBRARY

The appeal to the Friends for the 1993-94 academic year concluded at the end of May. The Library gratefully acknowledges the support it has received from Friends, both old and new, who have responded to the appeal for funds this year. Over the year, 291 Friends have given a total of approximately \$20,042. Most of the contributions have come from Friends in Canada and the United States of America. However, very welcome contributions have come also from Australia, Chile, Germany, Japan, Switzerland, United Kingdom and the West Indies.

The names of Friends whose contributions were received after January 31, 1994 are listed below.

The appeal for the 1994-95 academic year will be made in the October Newsletter.

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