

BELLADONNA MONOGRAPHS.*

BY FREDERICK B. KILMER.

The monograph, which may be considered as a written form for the presentation of a single subject, or a special class of subjects, is found among the products of ancient civilization, and comes down to the present time.

Monographs are found baked in clay, engraved on stone and written on parchment, dating back many centuries. Some of the Hebrew writings, such as those found in the Scriptures, may be classed as monographs.

Before the advent of the art of printing, monographs were often issued in duplicate by copyists. Specimens of some of these still remain in libraries. They constitute some of our most interesting and valuable possessions. There are collectors in this country and abroad who have specialized in the collection of monographs, and their libraries are unique and priceless. With the advent of printing, some of the older manuscript monographs were put in type, printed and circulated.

The renaissance of learning and the printing press gave to an author an opportunity to "get himself into print" by issuing an edition of his monograph for circulation among his colleagues.

Of interest to the student of history is the correspondence between the author and his contemporaries after the issuance of a monograph devoted to theology, philosophy or science. In this sort of correspondence, the whole subject is at times reviewed and discussed at length, often contributing materially to the theme of the monograph.

Scientific journalism and scientific societies were originated in the Seventeenth Century. Thus was produced a new method for the dissemination of scientific information, giving an impetus to progress in matters of science.

The earlier of the scientific journals were restricted as to size, and the space which could be given to any one subject was limited. Hence, monographs were continued as separate publications after the advent of the journals. The Eighteenth and Nineteenth Centuries produced many monographs.

The pamphlet form of publication, which might be considered as belonging to the same category as the monographs, has been a favorite form in politics, religion and science, and still persists.

Among the drug monographs issued prior to 1800, there were three devoted primarily to Belladonna.

The ordinary student would give these scraps of paper only a passing glance. Copies which have survived through the centuries are eagerly sought after by book collectors and librarians. As specimens of the early printer's art, they are of interest. They are printed from hand-set type, one page at a time, upon linen paper, with carbon inks. Quite in contrast to present-day issues printed on chemicalized pulp, these old prints will remain intact for centuries to come, while modern prints will tend to disappear.

They are of value to the research worker, placing before him, as they do, a review of the knowledge of the subject at the time of their issue, recording the progress of scientific thought. These leaves, yellowed and hallowed by centuries of time, stand as a clue to a living existence. From each page comes "a voice that

* Section on Historical Pharmacy, A. PH. A., Miami meeting, 1931.

speaks as though the heart of its creator still throbbed—thoughts of the past take shape and live in this atmosphere." (Lloyd.)

Taken separately or together, they contain information in regard to the drug Belladonna and the narcotic *Solanums* which is not only interesting, but valuable to the student of drugs.

To obtain the full story of the drug, one must search these monographs. They embrace the full knowledge of the drug existing at the time they were written. Within their pages will be found statements unknown to earlier writers upon the same theme. Incidentally, in their pages will be found records of facts later propounded as discoveries.

FABER'S "STRYCHNOMANIA."

Standing first in order of time, and by far the most complete among the monographs upon Belladonna, is the work which was produced by Johannes Matthaeus Faber, a Württemberg physician.

Faber's father was a Reformed Church clergyman in Augsburg. After a preliminary education, following the German custom, young Faber strolled through the lecture halls of six universities, finally receiving a Doctor's Degree at Strassburg (1653).

For a time he was physician to the Imperial City of Esslingen. He afterward rose to the rank of physician-in-chief of the household of Duke Frederick of Württemberg. In 1670, he became physician to the City of Heilbronn, which position he held until his death (1702).

The ducal residence was in the small village of Neustadt, near Heilbronn. It was during his practice in this village that the incident which inspired the research that in the end produced his notable monograph "Strychnomania" occurred.

While serving his princely master, Faber investigated the mineral waters of the section. Some of the springs had been known to the Romans, but had been abandoned. The results of his labors were published in 1669 under the title "A description of the for many years well known, now through Divine Providence re-discovered, wild or healing spring at Reigham."

The Prince, in emulation of the great rulers, was surrounded at his "Court" by painters, sculptors, men of science and literature. Among these savants was the French refugee, Dr. Charles Patin, son of Guy Patin, who was a scholar, anatomist, botanist and pneumatist.

This association with the Royal household greatly influenced Faber in his life work. He added to the Duke's collection specimens of Roman remains, the beginnings of an herbarium, and some of his own drawings. He used the library of the Prince in his research upon Belladonna, and inserted in the monograph his "nuncupatory epistle to Dr. Carlos Patin."

Faber's century witnessed the bitter contentions of the Galenites and the Paracelsusites in medicine. Faber followed Galen rather than the "ignorant boaster," Paracelsus. Influenced in his dissensions by the French school, he ignored Harvey's discoveries as to the circulation of the blood.

We may look upon Faber as representative of the orthodox medical school of his day. He believed in the doctrine of signatures and of astrological medicine. He was, however, bold, independent and progressive and his methods of treatment were rational and in accord with the faculties of medicine of his age.

Faber's chief claim to historical fame lies in his monograph "Strychnomania." Suddenly confronted with fourteen cases of poisoning through the eating of Belladonna berries, he began a systematic study of the plant, and after ten years of labor produced a volume of one hundred and twenty-eight pages in Latin text, with twelve etchings on copper. (Printed in 1677.)

The "Strychnomanicum" of the ancients had, in Faber's time, come to be *Solanum furiosum*. The book is "a record of its history and inherent quality. The frequency, the swiftness and the severity of its death-dealing power, the occurrence of a notable slaughter through its use, the antidotes and the healing powers of the plant, have all been written as a caution and as a security against a recurrence of a calamity and for the public good."

The book is dedicated to his Princely patron.

In a histrionic prooemium the Scriptures are cited, using the Hebrew text, to show that the "amentia," blindness, stupor, aphonia, drunkenness poured out upon the children of Israel for their transgressions of the law are quite comparable to the evil effects of the *Solanum furiosum*, "the apple of the furies," to which his book is devoted.

The "occult qualities" of the *Solanum* arise in the celestial channels of divinity—the stars. The baneful actions are induced by certain stars. "From the influence of planet or comet, we certainly experienced the saddest thing that ever happened to our citizens, when, in the Autumn of 1667, that fatal apple, *Solanum*, was distributed by the agency of several of our citizens."

Led on through this "disaster," Faber arranged to examine more carefully the nature of such an evil. In this study he "gradually discovered such unusual, rare and great things, that we believed them to be not only for our own information, but for the instruction of others;" hence, the book "Strychnomania."

Approaching dramatic literature, quite in contrast with the ordinary dry recitals of "case records," are Faber's "observations." Withal, they are penned by the hand of a master at clinical observation.

A "stupid teamster" had gathered branches of the *Solanum* bearing the tempting berries and had distributed them through the village.

And then! like a black cloud, the dread plague of stupor, blindness and delirium leading to death, settles upon the hamlet. Fourteen persons, five adults and nine children, within a few hours, are stricken with the furious poison.

With the acumen of an epidemiologist, Faber not only attends to the sick and dying, but seeks out the cause of the unknown, alarming disaster that is rapidly spreading through the valley. It is found to be the berries of the heretofore little known *Solanum furiosum* (*Belladonna*) distributed by the teamster.

Nothing escapes Faber. He traces the berries from the bush in the field to their transportation to the homes of the victims, follows their ingestion and notes their effects minute by minute. He records changes which precede dissolution, and, with artistic skill refers to the passing of the "vital spirit," and "the return of the soul to its Maker." In the fatal cases he relates the post-mortem phenomena.

The clinical observations (probably for the first time) note the variability of the action of the drug in respect to age and temperament.

The situation was novel, startling, perplexing. Faber was confronted with a serious situation, to him of unknown extent. He was without guiding precedent or authority, with no accurate knowledge of the cause. He was surrounded by an excited, superstitious, ignorant peasantry, prone to hide rather than to reveal.

In a few hours sickness had come to widely separated households. Home remedies had been administered, and the summoning of medical assistance delayed. When morning came to the village, some of the stricken were already cold in death. The cause and the extent of the dread visitation were unknown. New victims were continually coming to view. It might be that it was covering the whole Dukedom, or the whole land. They asked: "Was it the judgment of Heaven, or the work of the evil one?" The religious resorted to fasting and prayer; the wise, including Faber, studied the signs of the Zodiac.

As each new victim appeared, consternation, dread, fear and forebodings swept over the people of the hamlet. The effect upon the inhabitants was so great that

for many years thereafter, according to Faber's records, when the death of a child occurred suddenly rumors of a new epidemic of poisoning spread through the village.

In the midst of this consternation and terror, Faber, groping in the dark, without the aid of consultant colleagues, far away from medical supplies, by slow stages unravelled the thread and saved twelve out of fourteen cases—a creditable showing. The skill and acumen which he exhibited gave him a place among the medical heroes that went before, and came after, his time.

Faber lived only in the dawn of scientific plant classification, and before the word "pharmacognosy" had been coined.

He made an attempt to gather the Solanums into a group. Faber's classification is based upon affinity of structure, "internal and external," but in a larger part upon physiological and medicinal action. He also notes the habits of growth and general appearance of the plants as a whole. He enumerates twenty-seven species of Solanums allied to Belladonna; twelve of these are illustrated with drawings on copper, made for his book under his guidance. To relieve the dullness of a botanical dissertation, he injects quotations from Horace and Homer. He was familiar with the properties of the Mandragora, but makes no allusion to the superstitions of the laity in regard to this plant.

As the book is primarily devoted to Belladonna, Faber's description of the plant is very full. His list of names and synonyms for Belladonna stands as the first on record. If we add the Linnæus designation of *Atropa belladonna*, it will be practically complete.

Faber's knowledge of Belladonna came from a study of the living plant. In his description, we go with him into the fields at the edge of the Harthueser Wood, where we see the purple-flowered bush growing abundantly, with its deadly berries glistening in the sun. He notes its growth, from sprout to seed; he examines its stalk, root, leaf, flower and fruit, describing every part as his eyes see it. He feels, smells, tastes—and notes the results. He follows the life history through the seasonal round—Spring, Summer, Fall and Winter. The effect of the weather upon the plant is recorded. He quaintly applies the time-honored philosophy as to the influence of the planets upon vegetative life. The stars rule their growth, give them their form, and instil into them their deadly and their beneficent powers. His Solanum is under the "dominion of Saturn, the companion of Mars."

Faber's work might well be commended to students of pharmacognosy. He possessed none of the modern aids for plant study. With his eyes and his mind he reads the plant's intimate structure and function. He knew nothing of colloids, nor of protoplasm; he had no knowledge of photosynthesis or alkaloidal bases; yet he crudely and quaintly foresees much that we know to-day.

Following the doctrines of humoral pathology, Faber places the Solanums under Saturn and Uranium, "both inducing dryness, and, in fact, the heat of one modifies the frigidity of the other."

This influence of the planets determines the "temperament" or power of the Solanums to produce "extreme dryness," manifested in the symptoms of constriction, "tears restrained, sleep abolished," etc. The temperament of the planets is heat and dryness (modified); hence, a "dry poison."—"The tongue dries, the lips

dry, the bowels are torpid." Constriction, strangulation and other symptoms following the ingestion are due to "dryness."

To us it seems fantastic and irrational, even ludicrous, but in Faber's time it was a rational and a sound philosophy, hallowed through the ages, taught, believed and followed by the savants. While we do not accept it, we may look upon it with interest and with respect.

According to Faber, the action of *Solanum furiosum* is to be explained, not so much by properties which are visible and obvious, as by powers which are so obscure as to escape observation, or which at least are not generally known. *Solanum* action is, however, explainable by methodical investigation and rational inference.

Prior to Faber, and for some time after, it was not universally conceded or known that Belladonna acted as a poison.

That all plants which are fully under the dominion of Saturn are poisonous, or, in other words, that all poisons are Saturnian, was one of the striking tenets of astrology. The idea that the plants of Saturn draw sustenance and poisonous juices from the planets seems a unity of nature doctrine with a twist.

According to Faber, poisons "attack first, insidiously—slow poisoning; second, violently; third, in an unusual manner; fourth, damage the principal functions; fifth, attack immediately; sixth, their action is aided by adjuvants." Which division is not so far removed from a Twentieth Century classification.

In ancient medical practice, substances classed as poisons were not ordinarily used as remedial agents. Faber's theme is that the poisonous action of certain substances may be corrected by "medical art," and thus become beneficial.

With Faber, we are still striving to unravel the action of poisonous substances, toxins, etc.

Prior to Faber, Belladonna and the Solanums had been "hated, repudiated, degraded." At the risk of being stamped as unorthodox and perhaps "irregular," Faber dares to speak of their "benign powers."

When authorities disagree, Faber undertakes to decide. Fearlessly, he cites all discordant opinions.

The poetic conception of the universe, as Faber saw it, has disappeared. The bees have not lost their sting, but they no longer distil the nectar of the flowers into venom. Chemistry would not allow this.

The heavens of the astrologer, with its entrancing mythology, has been wiped away by the astronomer. We no longer trace in celestial space the source of a plant's noxious power.

According to Faber, *Solanum furiosum*, born of the dread Saturn, father of Pluto, devourer of children, who, though dull, heavy, grave and lethargic, was susceptible of becoming intemperate and rampant!

Solanum, "the companion of Mars," changed in form on every emergence from conjunction with the sun!

Solanum, comrade of Mercury, with implements of destruction!

Solanum, whose flowers carry the benediction of Paradise, also bears flaming rays of energy. The varying phases of the placid Luna governed *Solanum*'s maddening virus.

A pleasant fancy! All true when written, but now effaced under the scalpel of science.

Perhaps there will arise some painter who, while not restoring this picture, will portray one of more grandeur out of our concept of life, staging the interplay and grouping of the physiochemical elements and energies building up plant life.

Since Faber's time, we have come to know that the action of the different species of narcotic and mydriatic Solanums is greatly varied. While in some instances their alkaloidal contents are somewhat alike, their place and purpose are both physiologically and therapeutically different.

Faber intimates that the Solanums produced in one country differ from those of another clime. To an extent, such a notion still prevails.

Solanum furiosum—Belladonna—according to Faber, belongs to a class of "minor" poisons, the injury of which may be "curable." Over and over, he maintains that the poisonous action of Belladonna depends upon the "imprudent exhibition" in the dosage, the quantity, the conditions. He anticipated the more exact knowledge that came two centuries later as to the physiological action of the drug. Long after Faber, this action was brought forward as a new discovery.

With a limited, or perhaps a total lack of, knowledge of the nervous system, he indicates the drug's action thereon. Nevertheless, he pointed out the action of the drug through the, to him, occult, mysterious method. Of curious interest is his statement that the poison can be destroyed by "boiling."

We wonder whether Faber foresaw our knowledge of the adsorption of alkaloids in his idea that the poison was neutralized by the contents of a full stomach? He heretically noted the primordial, elective and indirect action of the drug, and its modification by other drugs.

Faber plunges into the mystic depths to explain the action of the Solanums on the human system. The Lunar rays, the sinister Saturnian and Jovial rays, act upon the plant, governing the parts of the body affected, and account for the symptoms appearing in the drug's action.

The nature of the action of the plant on humankind can be read in its structure: The bell-shaped pendent flowers point to the influence upon the head; the diuretic power is due to the number of berries. The berries of the Belladonna "express the darkening and glowing pupil," so marked in the manifestation of its power. The anatomical structure of the eyes, its nerves and muscles, are revealed in the calyx of the plant. The filamentous roots of certain species of Solanum simulate crabs, thus resembling the constellation "Cancer," and indicating the disease and the cure.

Long after Faber, the narcotic Solanums were "discovered" and exploited as a cure for cancer.

For the first time in the history of the plant, its physiological action is recorded in systemic form. One by one, each action is minutely described and, from his view, accounted for.

Faber's disclosures of the symptoms which he sees would parallel to a degree with the symptoms following Belladonna poisoning in our present textbooks, and do him credit as a painstaking pioneer author. In viewing his interpretation of the cause of the phenomena, we must view it from his age. Such a thing as an active principle or an alkaloid had not been dreamed of. Hence, his comparison of the resemblance of the Belladonna berries to grapes, and of their juice to wine, suggesting that the delirious intoxication simulating drunkenness may be due to some sort of concentrated malignant wine spirit in the juice of the berry.

The anodyne, hypnotic, narcotic action and seemingly opposite hysterical manifestation are influenced by the position of the planets which govern the plant, as they move through the Zodiacal constellation of Sagittarius, or the Archer.

Faber noted that the Solanum has a "peculiar malignity toward the eyes." But when it comes to that which in our day is a highly important action of the drug—mydriasis—he sees "a cloudy vision," "obfuscation," "opaque, smoky lens," but the enlarged pupil apparently had no meaning to him.

The mydriatic action of Belladonna and other Solanums was known long before Faber, and the knowledge was lost; it was repeatedly re-discovered before Faber, and repeatedly lost. Faber, like others before him and after him, missed what to us is a most characteristic action of Belladonna—the dilatation of the pupil of the eye.

We may ask whether, in our haste, we have laid aside or missed any important property or action of our drugs. Centuries hence, will we have buried and forgotten such an important thing as the mydriatic action of Belladonna?

In one of the chapters, the diseased anatomy in cases of Belladonna poisoning, including postmortem signs, is considered. In Faber's time, the notion that the bodies of persons dead of poison rapidly decomposed was considered scientific. He heartfully relieves the intricate and gruesome discussion by quotations from the classic poets.

In a dramatic word picture, Faber depicts the struggle of the body with a drug "endowed with malignity," created peculiarly for the destruction of the human body.

For ten years Faber searches the authorities, and lays down the principles of treatment as applicable to Belladonna poisoning. He presents nothing new.

Had we before us a panorama of the methods of treatment followed in cases of poisoning by the narcotic Solanums, from the time of Alexander (200 B.C.) down to our present era, our view would reveal the fact that through the millenniums, and at the end, the methods remain the same—prompt measures, emetics, evacuants, antidotes, purgatives, emollients, heat. Our present-day authorities have added measures to meet accompanying symptoms and secondary effects. They have evolved better methods of applying treatment, but in principle the measures remain the same.

For every phase and symptom of poisoning, a remedy is given, its action and the rationale of its use noted. Among these are the famous "theriaca," the reticular stone, the sigillatous earths. These are commended only as adjuncts to other forms of treatment.

Under the term "Specifics" he commends wine, cites cock dung and other ancient remedies, and in the end arrives at vinegar, "a remedy blamed by no man, praised by the principal writers, and found in our observation unique and immediate in action." Vinegar still appears in our textbooks as an antidotal measure in narcotic poisoning.

An exchange of letters between George Jerome Welsch, S.P.D., and Faber, forms an appendix to the work. In most courteous and diplomatic language, the writers discuss the relationships of the various species of the Solanums botanically, as well as their physiological and therapeutic action. Not unlike modern botanical controversies, the disputants flounder among the confusing nomenclature, and fail to reach a conclusion.

Faber closes the discussion with the expression: "At length, the end of this writing must be imposed. Farewell, and, as thou art accustomed, listen kindly."

In this modest volume we catch glimpses of medical history in the "glorious Seventeenth Century."

Johannes Matthaeus Faber, an ordinary practitioner of medicine, orthodox in his tenets, living and serving in a small community, physician and counsellor to the august Frederic. As physician to his city, he was health commissioner, inspector of pharmacies and advisor to its citizens and neighbor to its inhabitants. In modern terms, Faber was a "humanist." His humanism was in part derived from his classical training and the collaboration of the polite branches of knowledge. He ennobled the practice of physic through his inherent piety, good humor and good sense. He ever held a high regard and sympathy for his patients, believing himself responsible for their welfare. In this service he died poor, and his resting place is unknown and unmarked.

Through his acknowledged skill in the sciences, Faber was made a member of the Academy of Vienna. While holding to the traditions of his art, his mind was philosophic and speculative. He was bold enough to revolt against existing opinions.

Faber's labors were in no sense epoch-making. From our present-day vista he adds nothing to our knowledge of the subject. Turning backward, however, we find that he opened the door to the later studies of Belladonna and allied drugs which, in the centuries that followed, became of great importance.

We may join with Francus, his professor and colleague, in his poetic tribute: "Behold! Faber is the Faber (artificer) of the fortunes of men and health." And again, with his fellow worker, Welsch, we may exclaim: "Delight of Medicine, ornament of letters and pearl of Necker, most glorious and excellent man!"

SICKELS' "DISSERTATION CONCERNING BELLADONNA."

In 1724, or nearly fifty years after Faber, there was issued a second monograph on Belladonna written by Christopher Conrad Sicelius (Sickels) under the title "Botanico-Medical Dissertation Concerning Belladonna or Solanum Furiosum."

It forms a pamphlet of sixty pages, with a single illustration—that of the Belladonna plant. The pamphlet is an interesting specimen of the printer's art of the period, showing curiously wrought ornaments, chapter and page headings and initial letters. The printer was Henrique Christopher Croker, of Jena, a name well known among book collectors. Not many copies of the book remain. The title does appear in many bibliographies of the drug.

But little is known of the author. He attained the degree of Doctor of Medicine at Jena, and at the time of the issuance of the monograph he was a practitioner of medicine in the Prussian province of Nordhaus. His fame as a writer appears to rest upon this one effort.

The work is inscribed and dedicated to four professors of the University of Jena with effusive laudations. In doing this, he glorifies his University and exalts himself.

In accordance with the custom of the time, the dissertation carries a laudatory poem by the author's pastor, Frederic Christian Lesser.

The urge which inspired the dissertation is not clear. In part, there seems to have been the desire to place the author's erudition before his colleagues to "get

himself into print." There may have been a hope that in some way this effort might inspire a call for him to serve his University.

Sickels' botany is taken from Chabræus and other writers. Botanical classification, in Sickels' day, had arrived at a stage where leaf, flower and fruit were taken into account.

He enumerates fourteen plants as belonging to the Solanum group, among them being the *Stramoniums* and the *Mandrakes*, but the *Henbanes* are omitted. He states that the Belladonna, as evidenced by several characteristics, belongs to this group, but that in many respects it differs therefrom. At times he classifies the Belladonna as a "false Solanum."

His description of the plant is taken from books, and lacks the keenness of Faber's observations made upon Belladonna as it grew in the fields. He stresses the resemblance of Belladonna root to Chicory. He takes a fling at the apothecaries and herbalists, who, he claims, mix the Belladonna with harmless roots.

Sickels' mind was undoubtedly tinged with poison phobia. But his statement that "Our most praised medicaments may become poisons" was conceded in later centuries. Without intention or knowledge, he clearly forecasts the later discoveries of bacterial toxins.

His classification of the powers and effects of the narcotic Solanums are contradictory and confusing. The *Stramoniums* and the *Mandrakes* are poisonous; the *Henbanes* are rarely poisonous; Belladonna is always poisonous in its effect.

The gist of Sickels' dissertation and the only original observation in it is built around a quaint "shotgun" prescription characteristic of the period. This prescription was a mixture of roots and herbs to be made into an infusion for the alleviation of a cough. Its administration was followed by unexpected manifestations. The symptoms indicated narcotic poisoning. The results were not fatal. Among the ingredients called for in the prescription was Chicory root. Upon investigation, it was found that Belladonna root had, by accident, been mixed with the Chicory and dispensed in the mixture. This incident gives Sickels an opportunity to continually scold the apothecaries and to warn medical men against them.

The peculiar poisonous power of Belladonna, from Sickels' point of view, was due to "that certain sulphur" placed therein through the influence of the stars. This was not the crude sulphur of the shops, but the refined, ethereal essence of sulphur, one of the four spiritual elements from which all things were made.

Sickels' theory as to the reasons for the action of Belladonna is largely his own formulation. Possibly his desire to promulgate this theory impelled him to issue his monograph.

Upon a hasty reading, the ideas seem absurd. "Perfect rot" was the comment of one of the translators. Let us go back two centuries and sit beside Sickels, under the dim, flickering lamp of his day and age, seeing Belladonna and its action as he saw it. He casts aside the superstitions as to evil spirits entering into the plant. He dismisses the doctrine of signatures as the source of its noxious and malignant power. Its virulence is not due to conjunction of the planets. Sickels finds that the poisonous power of Belladonna arises from one of the four elements of the ancients—"vaporous sulphur"—symbolized by the lion and fire. When Belladonna is injected into the stomach, vaporous sulphur is free, reacting upon the

"spirits," the nerves, the flesh and blood of the victim who has taken the poison. This explains the phenomenon.

Let us now step forward two centuries into the Twentieth. Science has changed the four elements of the ancients into many simpler bodies. In plants, certain complex basic substances possessing physiological action have been found. Among these bodies, still somewhat illusive and obscure, are certain ones called alkaloids. In Belladonna, the alkaloids named Atropine, Hyoscyamine, etc., have been found. These so-called alkaloids from Belladonna, in the Twentieth Century, produce the phenomena cited by Sickels in the Eighteenth Century.

Let us go back two hundred years, substitute the word "alkaloid" for Sickels' "vaporous sulphur" and re-read the chapters. Then the whole aspect is changed.

If we again move forward two hundred years, we will find that Sickels' "reasons" for the action of Belladonna fit in quite well with those of modern authority. In noting the powers and effects of Belladonna, Sickels, of course, did not have the knowledge revealed in the later researches into the pharmacology and physiological action of the drug. He notably fails to record the mydriatic action of Belladonna. Sickels' measures for the treatment of cases of poisoning by Belladonna are those cited by the "fathers of medicine." They contain nothing new. These measures, in many respects, are those still in use. As in Sickels' time, we have no specific antidote for the poisonous element in Belladonna.

Taken altogether, Sickels finds no place in medicine for Belladonna. He finds that other anodynes are more reliable and safer than Belladonna. He is not a modernist. "Therefore, we ought to be less solicitous to-day to discover new medicaments, choosing from the better and safer ones already known."

Sickels, with modesty, estimates the value of his dissertation when he states: "However paltry are the things which these pages contain, they are not, indeed, altogether worthless, nor will the scattered observations be without some utility to practitioners." Sickels' "Botanico-Medical Dissertation Concerning Belladonna" is of interest to the student of drugs.

(To be continued)

THE PHARMACIST'S SHOW GLOBES.*

BY AARON LICHTIN.¹

History is one of the greatest heritages of the civilized races. A correct knowledge of one's national history and a proper retrospect of a country's ethical, cultural, economic, military, social and political problems is at the very foundation of true patriotism. Just as the horizon is widened and patriotism strengthened by a knowledge of national history, so does the knowledge of the past problems, struggles, defeats and victories of a profession such as ours—pharmacy—enhance professional pride and facilitate further progress.

What a wonderful panorama is unfolded by our profession's past. For some forty centuries it has been slowly and steadily stepping forward in the march of

* Section on Historical Pharmacy, A. PH. A., Miami meeting, 1931.

¹ The author of the paper illustrated his subject with many lantern slides—the article was presented by Prof. Louis Gershenfeld; only a few of the Globes are shown.