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AND
PHARMACEUTICAL RECORD,

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Journal of Practical Pharmacy.

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FEDERAL INSPECTION OF FOODS AND DRUGS

FOR a good many years past efforts have been made at each succeeding session of Congress to procure the enactment of a national Pure Food and Drug Law, but without avail. The opposition of interested parties or the pressure of political measures of greater importance has usually served to side track the measure in the closing days of the session. The Hepburn-Brosius bill failed of passage in this way at the last session of Congress, but Dr. H. W. Wiley, the chief of the Bureau of Chemistry of the Department of Agriculture, who had the measure greatly at heart, was successful in having incorporated in the act making appropriations for the Department of Agriculture a section authorizing the secretary of this department to investigate the adulteration of foods and drugs, to supervise the importation of food products from foreign countries, to inspect food products intended for exportation to countries requiring physical or chemical inspection of foods entering their ports, and to fix standards of purity for foods. This section empowers the Secretary of the Treasury to refuse delivery to the consignee of all foods, beverages and drugs which prove upon examination to be deleterious or dangerous to health. The following excerpts from the law, which went into effect on July 1, are explanatory of its provisions.

To investigate the adulteration of foods, drugs and liquors, when deemed by the Secretary of Agriculture advisable; and the Secretary of Agriculture, whenever he has reason to believe that articles are being imported from foreign countries which by reason of such adulteration are dangerous to the health of the people of the United States, or which are forbidden to be sold or restricted in sale in the countries in which they are made or from which they are exported, or which shall be falsely labeled in any respect in regard to the place of manufacture or the contents of the package, shall make a request upon the Secretary of the Treasury for samples from original packages of such articles for inspection and analysis; and the Secretary of the Treasury is hereby authorized to open such original packages and deliver specimens to the Secretary of Agriculture for the purpose mentioned, giving notice to the owner or consignee of such articles, who may be present and have the right to introduce testimony; and the Secretary of the Treasury shall refuse delivery to the consignee of any such goods which the Secretary of Agriculture reports to him have been inspected and analyzed and found to be dangerous to health, or which are forbidden to be sold or restricted in sale in the countries in which they are made or from which they are exported, or which shall be falsely labeled in any respect in regard to the place of manufacture or the contents of the package.

To enable the Secretary of Agriculture to investigate the character of food preservatives, coloring matters, and other substances added to foods, to determine their re-

used. The formula and working directions are as follows:

In a porcelain or enameled dish put
 White wax ʒxliss
 White oil ʒxlviij
 Dissolve by means of a gentle heat preferably on a water bath. To this add a solution of
 Borax ʒv
 Distilled water ʒxxiv
 Stir constantly till nearly cold, and then add while continuing the stirring
 Oil rose geranium..... ʒxxi

The stirring is best done by means of an ordinary egg beater.

A cold cream is a splendid article to push as a specialty, and its manufacture can be made a not inconsiderable source of revenue to the druggist by the expenditure of a nominal amount of judicious advertising.

MINT;¹

Its Early History and Modern Commercial Development.

By A. M. Todd,
 Kalamazoo, Mich.

As a citizen of Michigan, I voice the universal sentiment in welcoming you to our State, knowing that your deliberations will advance the public good and will give fresh impulse to the study and practice of pharmacy, chemistry and the allied professions and arts.

When, nearly a century ago, the pioneers of a new civilization were blazing the boundaries of our commonwealth, they were filled with admiration for our magnificent forests, beautiful lakes and streams, and fertile soil, and they fittingly chose as the official motto to be engraved on the seal of our State the words, "*Si queris peninsulam pulchram circumspice*" (If you seek a beautiful peninsula, look around you).

With a coast line approximating 2,000 miles, the genial climatic influence of the great lakes was early recognized as giving to aromatic plants and fruits a rare delicacy of flavor, which early gave birth to the famous "Michigan Fruit Belt" along our Western coast. It is accordingly quite natural that upon these rich and fertile plains, with such happy environments and gifts of nature, is found the home of the world's peppermint industry.

EARLY HISTORY.

"Mint" was among the plants first recognized as of value by the ancients and by them given a specific name, and many interesting references to it are found in the earliest known literature. Its extreme antiquity is attested by the fact that it was known in Greek mythology, where it was given a birth both romantic and immortal in connection with the amours of the gods. "Minthe" (*Μινθη*), a beautiful girl, had won the affections of Hades (Pluto), and in a fit of jealousy was transformed by Ceres into the plant which was then given her name, from which followed the Latin "mintha," "mentha" and "menta." Evidencing the widespread belief in this legend, there still exists under this same name in Pylus, the hill (Mount Mintha), upon which the transformation occurred, and at the base of the mountain was, in ancient times, a grove dedicated to Ceres and a temple to Hades. This romantic tradition is recorded by several classic writers, among whom are Strabo (*Geographia*, liber 8), Julius Pollux, and others.

Probably the earliest reference to mint preserved in the writings of the ancients is in the works of Hippocrates, the most celebrated physician of antiquity, born about B. C. 460, who among other things mentions it as an excitant to amor. A very interesting reference is found in the writings of Aristotle, born B. C. 384, who mentions its well-known cooling and soothing effects, as well as its antiseptic properties. Theophrastus, the successor of Aristotle, in his "*ἱστορία περὶ φῶτων*, (2) *Ἡβόσμος*" (*History of plants*), also mentions mint, but under the newer name ("Eduosmos") (fragrant, or sweet-scented.) We are told by Strabo and other classic writers that this new name was given it since many of the Greeks desired the plant to have a name suggesting its fragrance, and the new name seems to have been adopted by most of the later Greek classic writers, as well as in the Greek gospels of Matthew and Luke. Pliny, however, in his "*Historia Naturalis*," states that the Romans preferred to retain the more romantic and ancient name.

¹ Read at the meeting of the American Pharmaceutical Association, held at Mackinac Island, Mich., August, 1903.

One of the most interesting references to mint in ancient writings is the recorded utterances of Jesus, where, in Matthew XXII, 22, he says, "Ye tithe the mint, anise and cummin." The same passage in Luke XI, 42, reads, "Ye tithe the mint and rue and all manner of herbs." In both the original Greek gospels the later name "sweet-scented," is used. It is worthy of note that mint is the only herb mentioned in both gospels, and it would hence seem to be the most prominent of all known herbs; and the fact that the laws provided for taxes to be paid in it would indicate that it may have been regularly cultivated in Palestine at that time.

A most interesting account of mint is given by Pliny (23-79 A. D.), in his "*Historia Plantarum*" (liber XIX, cap. 8); also in liber XX, cap. 14. Among other things he mentions the means of propagation, and that on account of its pleasing odor it was used in banquets, and notes also its well-known medical virtues. Ovid ("*Fasti*," 2) speaks of mint as having magical power.

"OBSUTUM MENTA TORRET IN IGNE CAPUT."

Unfortunately, neither time nor space permits more than a very brief reference to the writers following the Christian era. The great physicians, Galenus (liber VI) and Celsus (liber IV), who both flourished in the first century, Dioscorides in the second century (liber III, cap. 35-36), and the celebrated Arabian Avicenna (A. D. 980-1037), all were well acquainted with mint and recorded the virtues for which it is to-day prized. In his celebrated book, "*Liber di Arti Distillandi*" (published in 1500 and which was followed with enlarged editions with very many rare plates illustrating the art of distillation and pharmacy), Braunschweig mentions five species of mint—*M. crispa*, *M. aquatica*, *M. rubra*, *M. balsamica* and *M. sarenica*—but it is difficult to recognize them all with precision.

The first printed allusion to mint in the English language which I have yet found is in the famous "breeches" Bible, printed in London in 1597 (which derives its name from the rendering of Genesis III, 7), "They sewed figge-tree leaves together and made themselves breeches." In this edition the utterance of Jesus, already referred to in the Greek, reads, "Ye tithe the mynt and annyse and cummin." In the following year (1598) appeared the splendid folio edition of the works of Matthiolus (3), which included the writings of Dioscorides, etc., with annotations. In this work 17 species of mint are noted and nine important species engraved, viz.: 1. *Mentha*. 2. *Mentha altera*. 3. *Mentha crispa*. 5. *Mentha græca*. 6. *Calamintha*. 7. *Calamintha magno flore*. 8. *Calamintha montana*. 9. *Calamintha aquatica*.

"Gerrarde's Herball" (4) (London, 1633) gives a very interesting description of the various species known to the writer (pages 679-686), with engravings of 19 varieties, including the "calamints." These are as follows: *Mentha sarivarubra* (Red garden mints), *Mentha cruciata*, *sive crispa* (croffe mint, or curled mint), *Mentha romana* (speare mint), *Mentha cardiaca* (heart mint), *Mentha spicata altera* (balsam mint), *Mentha aquatica*, *sive sisymbrium* (water mint), *Calamintha aquatica* (water calamint), *Mentastrum* (horse mint), *Mentastrum niucum anglicum* (party colored horse mint), *Mentastrum minus* (small horse mint), *Mentastrum montanum I. clusii* (mountain horse mint), *Mentastrum tuberosa radice clusii* (turnip rooted horse mint).

In Parkinson's "*Theatrum Botanicum*, or Theater of Plants" (5), published in London in 1640, very interesting descriptions of mints and their uses are given (pages 30-38), with engravings of 12 varieties, named as follows: *Mentha romana angustifolia sive cardiaca* (heart mint, or speare mint), *Mentha cruciata* (croffe mint), *Mentha crispa* (scispe or curled mint); *Mentastrum hortense sive mentha sylvestris* (the manured wild mint), *Mentastrum niucum anglicum* (white mints or partly colored mints), *Mentastrum montanum sive pannonicum* (Hungarian wild mints). The following species are given under the heading of "*Calamintha: Calamintha vulgaris* (common calamint), *Calamintha montana præstantior* (the greatest calamint, or mountain mint), *calamintha arvensis verticillata sive aquatica bel* (field calamint with whorled coronets), *Calamintha minor incana* (small calamint).

The first reference to any of the mints under a name suggestive of "peppermint" appears to be in the "*Synopsis Stirpium Britannicarum*" (second edition), by Ray, in 1696, his attention having been called to the plant by Doctor Eales, who had noticed it in Hertfordshire. In this work Ray describes it as "*Mentha spicis brevioribus et habitioribus, foliis, mentha fuscae sapore fervido piperis*," and in his "*Historia Plantarum*" (1704, Tom. III, 284), he refers to it as "*Mentha Palustris*." "Peper-Mint." Afterwards Linnæus gave it the name "*Mentha Piperita*," by which it is now universally known. It is stated that Ray's original specimen, which is still in the British Museum, agrees practically with that under cultivation.

Peppermint also appears to have been grown on the continent at Utrecht as early as 1771, having been mentioned by the botanist Caubius that year (6). It was also known in Germany, and renewed interest was awakened in it through the writings of Knigge (7). It became first official in the London Pharmacopœia in 1721, as "*Mentha piperitis sapor.*"

It is well known that the "mints" have the power of modifying their botanic structure and the flavor of their essential oil by changes in soil, climate, the class of fertilizers used, and methods of cultivation. In this connection I might mention the fact that the Mitcham peppermint plants which I imported from England about 20 years ago have already commenced to show modifications in structure, and the flavor of the oil has in the meantime undergone a change approximating more closely that of the original American variety.

When visiting the Yosemite Valley, California, famous for its magnificent scenery, a few years ago, I found a species of mint growing there indigenous, resembling *Mentha canadensis*. No peppermint had ever been cultivated within a thousand miles of this valley, and it is interesting to speculate as to whether this may have been one of the earliest forms of the *Mentha* genus. The flavor of this plant resembled that of pennyroyal (*Mentha pulegium*) rather more than peppermint.

The cultivation of "mint" appears to have been conducted in Japan centuries before the industry had assumed a commercial status in Europe, and though no authentic records to that effect are to be found, it is said to have been known in that country for over 2,000 years. The methods of distillation are extremely crude, and the variety of plant grown differs both in botanic structure and in the flavor of its oil from the true peppermint plant. The Japanese plant is *M. arvensis*, and appears such as might be expected from a hybridization of *Mentha viridis* (spear mint), and *Mentha canadensis*. The oil is very inferior in quality to that of *M. piperita*.

COMMERCIAL HISTORY.

The cultivation of peppermint began at Mitcham, in Surrey, England, about the year 1750, where at that time only a few acres of ground were devoted to medicinal plants. Fifty years later the area under cultivation was about 100 acres, but the growers having as yet erected no distilleries the plants were still carried to London for distillation. The industry in England reached its maximum just a century after its inception, the area under cultivation being about 500 acres, after which it began rapidly to decline, owing to American competition, being reduced during the next 15 years to about 250 acres. When visiting the English peppermint fields, I found the plants less robust and thrifty than in America, which is in part due to our more fertile soil and improved appliances for cultivation and distillation.

The inception of the industry in America was in 1816, when Mr. Burnet collected a quantity of plants on the shore of a stream in Wayne County, State of New York, and distilled therefrom about 40 pounds of oil. From this small beginning the industry developed, until Wayne County, N. Y., soon became the chief peppermint-producing section of the world, and was for many years famous for the quality of its product. In the year 1835 the first peppermint was planted in Michigan, in St. Joseph County, on White Pigeon prairie, the first distillery being erected the following year. The distilleries first built in Michigan resembled those of Wayne County, which in turn resembled those of England, the essential features being a copper still, into which the plants were placed, immersed in water, under which a fire was directly built, the escaping steam being condensed in a crudely constructed "worm," or condenser. Many years ago the production of peppermint oil in Wayne County, N. Y., was in some years as great as 50,000 pounds, but owing to the more favorable soil found in Michigan and our improvements in distilleries and methods, the production has been reduced to about 5,000 pounds. Peppermint was also cultivated for some years in Ohio and some more Southern States, but in all these States it has been for some years abandoned.

IMPROVEMENTS IN DISTILLATION.

In 1846 a radical improvement in the form of distillery was effected in Michigan by substituting for the "copper kettle still" large wooden vats with steam tight covers, operating upon hinges, allowing them to be opened and closed at pleasure. A short distance above the solid bottom of the vat was placed a perforated removable bottom, upon which the dried plants were closely packed, after which the cover was closed down, distillation being effected by the ingress of steam under the perforated bottom, by means of a pipe with valves connected with a steam generating boiler placed some distance away. Two of these vats were placed in each distillery. With this improvement it was possible to keep continuous fires in the furnace, also to allow distillation to progress constantly and uniformly, since the ingress of steam is regulated by valves and pressure gauges. Under the new system the yield of a

single distillery increased from 15 pounds to about 50 or 70 pounds of oil per day, also producing a higher quality, since the danger of forming empyreumatic products by direct contact with the fire was overcome. The size of the vats has gradually increased, and in the four newest distilleries erected on our farms, each distillery has four vats, with a capacity of about 4,000 pounds per vat for each charge. Proportionately large steam generating boilers are necessarily required, and we have introduced "steam cranes" for handling the plants. The distilled charges are spread on the ground to dry, afterwards being removed to barns to be fed to horses and cattle. Improved tubular condensers covered with noncorrosive metal are used. When the weather is favorable and the plants are well covered with leaves and blossoms, we have occasionally distilled over 1,000 pounds of oil per day in a single distillery. We have three such distilleries at "Campania Farm."

SOIL.

Peppermint is now most successfully grown on land which centuries ago formed the bed of ancient lakes, in which various aquatic plants grew luxuriantly, whose gradual decay during many centuries formed a rich black soil of decomposed vegetation. After the subsidence of the waters, trees of various kinds sprung up, so that the lake bed often became a forest. Additional soil was formed year by year by the falling leaves and decaying trees, until a thickness sometimes of over 20 feet of soil was created. This soil is usually jet black and extremely rich and fertile. Lying relatively low, it is necessary to thoroughly drain it, which involves much expense. At Campania Farm it was necessary to construct over 10 miles of canals and ditches, including the straightening and enlargement of a natural water course, which should serve as an outlet for the smaller drains. At Mentha Farm we are now constructing about 15 miles of drains, including a canal 4 miles in length. This system will be so arranged as to be used for drainage when there is an excess of moisture, and for irrigation when more moisture is needed.

Owing to the soft and yielding nature of this soil, it is usually impossible for horses to work upon it during the spring months or after excessive rains, except they are provided with "mud shoes," which consist of pieces of wood about 1 inch in thickness, 9 inches wide and 11 inches long, fastened by clamps under the ordinary metal shoes. In the spring the water is scarcely 1 foot below the surface of the soil, and in the driest months it seldom recedes more than 4 feet below the surface. In the vernacular, this soil is frequently known as "muck." It is rich in carbon and can be converted into compressed fuel briquettes. This new use is now attracting wide interest in America.

PLANTING AND CULTIVATION.

The ground, having been made ready by plowing the preceding year, is harrowed early in the spring to reduce it to a mellow state, being then marked with furrows about 3 feet apart. Workmen carry in sacks slung over their shoulders a quantity of the "root stocks," which have been produced from the planting of the preceding year. These are about ¼ inch diameter and from 1 to 3 feet in length when in healthy state. They are placed lengthwise in the furrow by the workmen, who cover them with earth by a movement of their feet as they walk astride the row. An experienced workman can plant from ½ to 1 acre per day, according to condition of soil, roots, etc. With unfavorable conditions a smaller quantity is planted. With good weather the plants commence to appear above the ground within two weeks, but new plants continue to form for several weeks later. Cultivating with horses begins within a few weeks after planting, for which purpose cultivators are used having many fine teeth. These are immediately followed by men with hoes, who remove the weeds and grass which the cultivators have left. This process is continued until the plants have become so large as to render cultivation unnecessary, which usually occurs in July, at which time fresh root stocks have commenced to be thrown out, which during August and September will entirely cover the ground. The crop thus grown for the first time is known as "new mint." In the meantime the fields which were planted the preceding year have thrown up a "second" crop, or "old" mint, without replanting, and, being earlier in the ground, mature sooner than does the "new." Harvesting begins when the plants have approached maturity, which is indicated by the appearance of long purple blossoms at the extremities of the stems, the leaves being well charged with oil, and those nearest the base of the parent stalk beginning to turn yellow and drop to the ground. It is at this season that the plants produce the highest quality of oil.

HARVESTING AND DISTILLATION.

To prepare for distillation the plants are mowed and allowed to dry in the sun a little less than hay is usually dried, it

being desirable that as much "curing" shall be done as may be effected without the loss of the leaves and blossoms in handling. Distillation is conducted with much greater rapidity, and a better quality of oil results when the plants are well dried; but if too dry, a serious loss of oil occurs by abrasion. It was long supposed that a loss occurred by diffusion in the atmosphere through drying, on which account many growers drew the plants to the distillery in the green state, in which condition it requires fully twice the time for the extraction of the oil, besides much additional expense in handling the extra weight. The longer steaming also injures the quality by depositing resin in the oil extracted from the stems. It is found that the drying of the plants produces a physical condition of the leaves which causes the oil cells to be easily ruptured by the steam, and distillation more quickly accomplished. It is of extreme importance that the entire crop should be distilled as quickly as possible after maturity.

To determine this question I made a careful experiment many years ago, as follows: Equal areas of ground and equal quantities in weight of plants growing side by side were cut down at the same hour, near mid-day, when the plants contained no abnormal moisture. Half the plants were immediately distilled. The other half were dried in the shade for six months, losing 49.4 per cent. in weight. It was found that no loss whatever of oil occurred by excessive drying, as the oil is held in microscopic cells which nature has thoroughly sealed.

The plants, having been thoroughly dried, are drawn to the distillery and are placed at once in the distilling vats. If well dried and a sufficient supply of steam is passed through them, distillation may be effected in from 30 to 40 minutes, but in the case of undried plants, or those upon which cold rains have fallen, two hours is frequently required. Steam is admitted at the bottom of the vats, the constant pressure forcing it upward through the plants. The heat expands and ruptures the oil cells, and the oil, being thus carried away with the steam, passes through the condensers, flowing thence into a receiver, where separation occurs by gravity. Harvesting and distillation are effected in America during August and September.

In the very comprehensive and valuable work on "Volatile Oils," by Drs. E. Gildemeister and Fr. Hoffmann, may be found a number of illustrations representing scenes in peppermint harvesting, etc., as well as much data regarding the industry.

The yield of essential oils varies greatly. With plants well supplied with leaves and blossoms and under favorable conditions of weather, I have obtained 9 to 10 pounds of oil from 1,000 pounds of plants, but with unfavorable conditions, less than 1 pound. The year 1902 having been exceedingly unfavorable, the yield of oil was the smallest for many years.

A fair estimate of the average annual production and consumption of American peppermint oil may be placed at 200,000 pounds per annum, although it is estimated by some at a higher figure. It is certain that the amount sold as "oil of peppermint" is much greater than the quantity named, being increased by adulteration. Owing to the reduced crop of the past year, adulteration has existed recently to an alarming degree. E. J. Parry, B.Sc., F.I.C., in a report published in the *Chemist and Druggist*, London, December 6, 1902, gives the tests of ten samples all represented as pure, but none of which were pure, and the extreme adulteration in most of the samples is readily seen by their sp. gr. and optical rotation. Some are sold under spurious labels, with fictitious names of persons claimed as distillers to hide the identity of the adulterators. I am glad to state that measures have been inaugurated for disseminating information regarding quality, tests, etc., which it is hoped will result in materially checking adulteration.

Peppermint in the pure state is highly agreeable and beneficial, and its consumption during the past 20 years has doubled, owing to new uses which have been found, and an increased use for those purposes to which it had already been applied. It is estimated that about 40,000,000 pounds of peppermint plants are produced annually in Michigan within a radius of 75 miles from Kalamazoo, yielding on the average about 200,000 pounds essential oil. About one-half of this is consumed in America, the remainder being exported, chiefly to Europe.

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DEVELOPING THE PRESCRIPTION DEPARTMENT THROUGH THE GOOD WILL OF THE PHYSICIAN.

By JOSEPH F. HOSTELLEY,

Collingdale, Pa.

HE is a wise, success-courting druggist who develops his prescription department through the good will of the physician. While some doctors prefer not to direct their prescriptions to any one particular store, the majority may be influenced. Of course, some of these, who promise great possibilities toward the development of the prescription department, will direct where their prescriptions should be filled only on the patient's request, and then, possibly, it is "to any good store like Blank's." But even that evasive patronage gives an impetus toward the development of this particular prescription department that gains force and a far-reaching effect through the patient repeating to others the doctor's evident preference for this store. But many physicians with preferences are more outspoken. Then, there is the prescription blank bearing the druggist's card, to many patients the tacit approval of the physician, not to be ignored.

ADVERTISING THE PRESCRIPTION DEPARTMENT TO THE PUBLIC

will never assure its development without the good will and favorable consideration of the physician. To win this there is no more surer way than by showing personal interest in the physician, emphasizing it by personal meetings with him arranged with a view toward engendering and establishing good will and a friendly relationship.

In a restricted field like this oral advertising is often a far greater force than the power of the printer or the pen. This is the result of a personal equation and the natural affinity between the tongue and the ear. A direct, personal appeal will often effect what printed or written words would never accomplish. There is no personality in type; none of the peculiar subtlety of speech; nothing that will so positively create an opinion as the words of the mouth. Every nation has its consul; every corporation has its agent; every business has its drummer. The affairs of State and the interests of the company or the individual adjust themselves to conditions and circumstances quickly, and with less friction when man meets man and each may speak his views. When the druggist meets the physician in person, if he be at all pleasing and diplomatic in address, good will is assured and the prescription department favored.

VALUE OF THE PERSONAL INTERVIEW.

Few druggists properly appraise the personal interview. In the development of the prescription department too many pin their faith to a few prescription blanks with their names on, an occasional blotter or folder, or possibly to their diplomas and fine store fixtures. The druggist doesn't meet the doctor frequently enough in person. He should meet him at frequent periods for business talks, and as often socially as opportunity offers. He should bid for professional friendship and co-operation. It is the druggist in whom the physician feels the confidence and sympathy due a friendly member of an allied profession who profits by his prescription writing.

When some question about a prescription or a remedial agent is to be referred to a physician, do not send a junior clerk to his office with instructions to ask Dr. Smith about this or that. Go yourself. And be thankful that the opportunity was offered for a meeting with the doctor in his office, no matter if he be a frequent caller at the store. Meeting its principal under various circumstances, upon different professional and social occasions, increases the interest and good will the physician feels toward him, and keeps his store and its prescription department always in mind. It is a great mistake for a druggist to frown and scold about the enigmatical prescription he occasionally receives. He should be grateful to the "pen that slipped" for affording no better opportunity than this for bringing his prescription department forcibly to the notice of a prescription writer. If all occasions like this that might be made to contribute materially toward the development of the prescription department are duly appreciated by a druggist, he will wish for "slips of the pen" and illegible chirography from more than one doctor in town.

IT IS PROFESSIONAL INTERCOURSE

that brings the druggist into closer touch with the doctor, and establishes between the two congenial relations, a bond of co-operation and good will. Mutual interest and dependence es-