

THE PROFESSIONAL PHARMACY.*

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(Continued from page 901.)

CHAPTER VII. STUDY OF LEADING INGREDIENTS.

A total of 20,000 prescriptions, 10,000 from professional pharmacies and 10,000 from commercial type drug stores, were carefully studied and a compilation of all ingredients occurring therein was made. A list was made of all ingredients, classified according to type, showing the number of times that each ingredient occurred. Space does not permit the inclusion of the entire list, but all "leading" ingredients, those occurring five times or more each in 10,000 prescriptions, are listed in this report, with the exception of manufacturers' brand-named specialties, which cannot be published under the policy of the Department of Commerce. However, a complete summary of the leading manufacturers' specialties according to their therapeutic use and action is included. It is worth while to refer to "The Prescription Ingredient Survey," written by Prof. E. N. Gathercoal and published by the AMERICAN PHARMACEUTICAL ASSOCIATION, which lists the leading manufacturers' specialties and other ingredients.

In the first prescription department report on the Survey, all ingredients occurring 25 times or more each in 15,063 prescriptions filled in commercial type drug stores were considered leading ingredients and listed as such. Inasmuch as some might consider the list of ingredients occurring 25 times or more not sufficiently inclusive, it was decided to use all ingredients occurring 5 times or more in this second report. This minimum number of occurrences, only 5 times in 10,000 prescriptions, might be considered too small to enable an ingredient to be classed as a "leading" ingredient, but when it is considered that only 684 out of the 1725 different ingredients occurred as many as 5 times, it will be seen that the number of leading ingredients is small compared with the number of prescription items carried by the usual drug store.

It is realized that the accompanying lists of leading ingredients omit some items which some pharmacists may consider important and include other items which might be considered unimportant, according to the experience and requirements of some members of the profession. However, it should be kept in mind that the ingredients listed are those which actually occurred in the 20,000 prescriptions studied. Syrup of ginger, for example, occurred 160 times and has a high place in the list. This was brought about by the unusual preference of one doctor for this vehicle, this doctor writing a substantial number of the prescriptions studied in one store. It is not likely that syrup of ginger would ordinarily receive such a high place on a list of leading ingredients. Due to manufacturing within the pharmacies and the fact that these lists contain only ingredients prescribed as such, some important items do not have a place in these lists. For example, citric acid does not even appear in the list. Yet Store 6-B purchased and used an average of 7 pounds (worth \$3.18) a month over a six months' period. Another example is fluidextract of wild cherry, which was extensively used in the drug stores in manufacturing syrup of wild cherry, and yet not being prescribed in the fluidextract form, does not appear among the leading ingredients. A number of galenicals, such as waters, syrups, simple percentage solutions, etc., are in all probability manufactured more economically by the pharmacist. However, not all of the ingredients used in their preparation appeared in the prescriptions studied.

Among other items usually stocked in the prescription department which may not be found at all, or only to a limited extent in these or any other lists based on ingredients occurring in prescriptions are the following: Spirits (oil) of turpentine, castor oil, acid muriatic, acid oxalic, calcium oxide (lime for lime water), carbon tetrachloride, prepared chalk (technical), sodium fluoride, flaxseed whole and ground, powdered orris root, solution of formaldehyde, denatured and wood alcohol, benzine, caramel, honey, chloride of lime, Paris green, plaster of Paris, powdered pumice, whiting, ether (anesthesia), ether (motor), soap liniment, tincture of arnica, fluidextract of rose soluble, fluidextract of sarsaparilla, fluidextract of tolu, fluidextract of wild cherry, pills cathartic compound improved, dispensary tablets, potassium bicarbonate, potassium permanga-

* See Table of Contents, page 671, July issue of the JOURNAL.—This instalment concludes the article which will be made up in paper-covered reprints; for price, see August JOURNAL, page 799.

nate, saccharine, extract of lemon, extract of vanilla, tablets veronal, hypodermic tablets of strychnine sulphate, capsules of apiol and ergotine compound, capsules of quinine sulphate and bisulphate, santal oil, blue ointment, carbolic (phenol) ointment, compound licorice powder, ampuls corpus luteum, ampuls ovarian substance, oil of cotton seed, neatsfoot oil, oil of cedar, oil of citronella and oil of cloves. Biologicals and insulin are two other outstanding types of prescription department items which may have important sales in many drug stores, and yet fail to appear on a list of the leading ingredients prescribed.

To a certain extent every drug store presents an individual problem predicated upon the prescribing habits of its contributing physicians, geographical location, health and weather conditions, etc., thus making it impossible to evolve a single formula establishing the correct stock of drugs for all drug stores. But with a few additions and deletions the accompanying lists should serve as an excellent guide to the pharmacist confronted with the problem of placing his opening order for a prescription department stock, and to the wholesaler in supplying the requirements of retailers.

For purposes of convenience, the leading ingredients have been classified into the following four types: 1. Chemicals; 2. Galenicals and pharmaceuticals; 3. Botanicals, oils, etc.; and 4. Proprietaries or manufacturers' specialties (shown by therapeutic use only). The number of items in each group, together with a suggested quantity and the prevailing cost price at the time of the Survey, are shown. A number of items listed under chemicals might not be so classified if the full scientific significance of the term was applied. Such items have been classified as chemicals for convenience and other practical purposes, due among other reasons to the fact that they are usually placed on the drug store shelves along with chemicals and are frequently distributed by chemical manufacturers. In the same manner, a few items classified under galenicals and botanical drugs do not strictly fit under these descriptions. Examples of these are lanolin and petrolatum which were placed along with ointment bases, as they are usually placed on the prescription department shelves.

In the majority of instances, the official English titles have been employed. However, a few exceptions will be noted, due to a desire to group certain chemicals and pharmaceuticals together in certain classes. For example, all of the salts of iron and mercury are grouped together.

Table XXXVII gives a summary of the leading ingredients, those prescribed at least five times each. It will be seen that chemicals had the most prominent place among the leading ingredients. The 164 chemicals represented only 24 per cent of the 684 leading ingredients in numbers, but were prescribed an average of 135 times each, or a total of 22,087 times. Galenicals, which had the next best showing, were prescribed an average of only 49 times each. Chemicals were actually called for on prescriptions more times than the combined total for the other three groups of leading ingredients.

It is particularly interesting to note that for the comparatively small sum of \$93.51, all of the 164 leading chemicals could be stocked by the pharmacist, the average cost of a typical order being only \$0.57 per chemical. On the other hand, a typical order of each of the 253 specialties occurring among the leading ingredients would cost a total of \$288.98, or an average of \$1.14 per specialty. Thus it is seen that the low average investment required in the case of chemicals, and their fine movement rate, both of which factors are an indication of low operating cost, give chemicals a distinct advantage from the point of view of profit possibilities to the pharmacist. The entire 684 leading ingredients could be stocked for an investment of \$605.77, according to cost prices at the time of the Survey. With a few exceptions, to account for a store's individual and peculiar customer demands and to provide items of an emergency nature, these 684 items ought to comprise a sufficient opening order for the prescription department of a usual commercial type drug store, and should form the basis for the opening order for a professional pharmacy. In fact, some stores would probably find the entire 684 items to be too large an opening order. Pharmacists wishing to be very conservative until the demand is proved might order at the start only those items which occurred at least 10 times each, which would probably comprise an adequate opening order for the prescription department of the average commercial type pharmacy. If only the 445 items which occurred 10 times or more each in 10,000 prescriptions were ordered, the investment required would amount to only \$387. The opening order would then be composed of 126 chemicals valued at \$74.88, 151 galenicals costing \$132.07, 147 specialties valued at \$168.17 and 21 botanicals, oils, etc., valued at \$11.88, plus necessary

emergency items. Necessary additions to the stock could later be made when actually received on prescriptions to be filled. This procedure will help to avoid overstocking on the opening of a new store.

The cost prices shown in the table and lists are based on the best chemicals and other types of ingredients. Even thus, the 684 leading ingredients could be purchased for only a little more than \$600. This fact should convince the pharmacist opening a new drug store of the advisability of stocking only the best chemicals and other ingredients, as any difference in price based on quality would be of little importance when considered in terms of the individual prescription.

Realizing the immense practical value of any information on the subject of the cost of stocking a prescription department, the authors contacted a leading manufacturer of fine prescription chemicals. This manufacturer offers pharmacists their choice of three assorted lots of chemicals, one containing 102 items and costing approximately \$50, one containing 153 items and costing approximately \$75, and the other consisting of 253 items and costing approximately \$125. Upon checking the survey list against the manufacturer's lists, it was found that only 25 per cent of the items on the manufacturer's smallest list and 43 per cent of his largest list did not occur on the Survey list. This difference would have been far less if the manufacturer's lists had included narcotics, as does the Survey list, and if the manufacturer's lists had not included quite a few specialties, galenicals, balsams, oils, etc., in addition to chemicals. The average cost per item on the manufacturer's lists was \$0.50, as compared with an average cost of \$0.57 for the leading chemicals in the Survey. This difference is easily accounted for by the fact that the Survey list included a number of narcotics with an average cost of approximately \$1.70. In fact, the 11 narcotics among the 164 leading chemicals would cost about \$19 and represent nearly 20 per cent of the investment required in stocking the 164 chemicals. Yet in spite of the inclusion of these comparatively expensive narcotic items, the 164 chemicals would require an investment of only \$93.51.

The quantities shown on the lists are considered the most economical for the average store to purchase, being neither too large nor too small. In the case of chemicals, the quantities should be sufficient to take care of the requirements of the average store for a considerable period of time. In the case of certain items such as acid acetylsalicylic (aspirin), a pound at \$1.05 rather than a quarter pound at \$0.31 might advantageously be ordered, but when it is considered that the saving on this item would only be \$0.05 a quarter pound, it is not believed that the valuable and limited space required to shelve the larger package would be warranted.

Conversely, there are a few instances where the reader may feel that the quantities mentioned are too large. Here again it is largely a case of individual opinion. For example, acid benzoic was prescribed an average of only three times in each of five stores studied, yet 4 oz. at \$0.27 rather than 1 oz. at \$0.18 is suggested. One reason for this is the decided price differential and another that the 1-oz. packages are almost too small to allow of easy handling. In using the list it should be borne in mind that a number of items such as boric acid, are increased in quantity due to the fact that two forms, such as powdered and crystal, are necessary. There are also a few chemicals which should be stocked in two or even three sizes, and a very few instances where one or two extra packages are desirable to meet the demands of the occasional "over-the-counter" call for an unbroken package. Only one pound of certain chemicals, such as magnesium sulphate (Epsom Salt) is designated, the primary purpose of the list being to show the quantity necessary to meet prescription demands. Naturally, a much larger quantity of this and other chemicals used for other purposes would have to be stocked, put up in convenient packages, or in 5-lb. to 100-lb. lots. In allocating quantities, the factors of possible deterioration, potency and extent of use have been kept in mind.

It will be seen that the list of 164 leading chemicals contains a number of alkaloids, such as cinchonidine, cinchonine, cocaine, codeine, ephedrine, eserine, morphine and strychnine. Most of these alkaloids, with the exception of cocaine and ephedrine, used in oil solutions, are very rarely used in compounding prescriptions, though often prescribed.

Manufacturers' price lists seldom quote prices on narcotic chemicals, galenicals and pharmaceuticals, due to the tendency of the prices to fluctuate, but the prices shown on the lists were obtained from reliable sources.

A study was made of the 668 official prescriptions analyzed for commercial type Store 6-B

and it was found that chemicals predominated in approximately 50 per cent of them and were present in many others. As seen by consulting Tables XVI, XVII and XVIII the cost of ingredients in prescriptions containing only official ingredients was low. This average item investment of only \$0.57 for chemicals supplies a reason for that finding.

TABLE XXXVII.—SUMMARY OF INGREDIENTS WHICH OCCURRED FIVE TIMES OR MORE EACH.

Type of Ingredient.	Number of Ingredients.	Per Cent of Total.	Total Value of Opening Order.	Average Cost per Item.	Number of Times These Ingredients Were Prescribed.		
					Total.	Per Cent of Total.	Average per Ingredient.
Chemicals.....	164	24.0	\$ 93.51	\$0.57	22,087	51.3	135
Galenicals.....	234	34.2	206.15	0.88	11,357	26.4	49
Specialties.....	253	37.0	288.98	1.14	8,625	20.0	34
Botanical Oils, etc....	33	4.8	17.13	0.52	983	2.3	30
Total.....	684	100.0	\$605 77	\$0.89	43,052	100.0	63

The last column in each of these ingredient tables shows the average number of times each ingredient occurred in the "U. S. P.-N. F. Ingredient Survey," which is described at more length later in this chapter. This Survey was conducted by Prof. E. N. Gathercoal and was based on 121,924 prescriptions in the states of New York, Maryland, Missouri and California. These prescriptions were obtained from professional pharmacies, commercial type drug stores with a good prescription business, and many commercial type stores which filled less than ten prescriptions a day. The data on prescription ingredients prepared by the National Drug Store Survey was contributed as the Missouri portion of the survey. The publication from Professor Gathercoal's survey is entitled: "The Prescription Ingredient Survey," and is published by the AMERICAN PHARMACEUTICAL ASSOCIATION. It is believed that the average for these four states provides a valuable comparison with the occurrence of ingredients in the St. Louis stores forming the test stores in this report.

NOTE: Foot-note 1 in each of the lists. Items so marked are generally important throughout the country, occurring at least 10 times per 10,000 prescriptions in *each* of the four states represented in "The Prescription Ingredient Survey." If an item appeared in either set of 10,000 prescriptions from Missouri it qualified as to Missouri. In rare cases the foot-note is applied to an item which fell slightly below the requirements or varied considerably in just one state for some unusual reason.

TABLE XXXVIII.—LIST OF 164 CHEMICAL INGREDIENTS OCCURRING 5 TIMES OR MORE IN EACH 10,000 PRESCRIPTIONS FROM PROFESSIONAL AND COMMERCIAL TYPE DRUG STORES.

Rank in Group.	Leading Chemicals.	Source of Authority.	Unit.	Unit Price.	Number of Occurrences per 10,000 Prescriptions.		
					St. Louis Commercial Type Drug Stores.	St. Louis Professional Pharmacies.	Average in Pharmacies throughout the U. S.
79	Acetanilid ¹	U. S. P. X	4 oz.	\$0.17	35	6	23.2
147	Acetone	U. S. P. X	1 lb.	0.42	...	7	3.1
4	Acetphenetidin ^{1,2}	U. S. P. X	4 oz.	0.53	721	306	350.0
2	Acid, Acetylsalicylic ^{1,3}	U. S. P. X	4 oz.	0.31	896	343	476.2
46	Acid, Arsenous ¹	U. S. P. X	1 oz.	0.13	64	45	46.7
47	Acid, Benzoic ¹	U. S. P. X	4 oz.	0.29	14	92	25.9
11	Acid, Boric ¹ (1 lb. powder, 1 lb. crystal)	U. S. P. X	2 lb.	0.44	153	345	174.0
53	Acid, Hydrochloric (Dilute) ¹	U. S. P. X	1 pt.	0.30	31	67	53.4
140	Acid, Lactic	U. S. P. X	4 oz.	0.29	3	6	3.6
148	Acid, Nitrohydrochloric (Dilute)	N. F. V	1 oz.	0.15	...	7	5.1

141	Acid, Pyrogallie (Pyrogallol)	U. S. P. X	1 oz.	0.31	...	9	0.8
18	Acid, Salicylic ¹	U. S. P. X	8 oz.	0.22	47	296	122.3
91	Acid, Tannic ¹	U. S. P. X	1 oz.	0.18	17	16	20.9
149	Acid, Tartaric	U. S. P. X	1 lb.	0.54	7	...	0.8
43	Alcohol ¹	U. S. P. X	1 gal.	4.00	50	71	89.5
92	Alum ¹ { 1 lb. powder 1 lb. burnt 1 lb. crystal	U. S. P. X	3 lbs.	0.77	12	21	20.7
67	Aluminum Acetate ⁴	.....	4 oz.	0.31	11	54	7.1
62	Amidopyrine ¹	U. S. P. X	1 oz.	0.75	45	31	135.8
86	Ammonium Bromide ¹	U. S. P. X	4 oz.	0.24	12	24	26.2
106	Ammonium Carbonate ¹	U. S. P. X	4 oz.	0.21	13	11	26.7
16	Ammonium Chloride ¹	U. S. P. X	4 oz.	0.13	297	120	208.4
130	Ammonium Iodide	U. S. P. IX	1 oz.	0.43	10	2	5.8
59	Antipyrine ¹	U. S. P. X	1 oz.	0.27	67	19	62.3
1	Aqua (Distilled) ¹	U. S. P. X	5 gal.	1.50	833	1144	839.5
17	Atropine Sulphate ¹	U. S. P. X	1/8 oz.	0.48	169	240	125.1
75	Barbital ^{1,5}	U. S. P. X	4 oz.	1.30	7	45	24.9
100	Barbital Sodium	U. S. P. X	1 oz.	0.65	4	23	6.1
137	Barium Sulphate	U. S. P. X	1 lb.	0.21	1	9	3.6
154	Betanaphthol Benzoate	.....	1 oz.	0.27	6	...	0.7
35	Bismuth Subcarbonate ¹	U. S. P. X	4 oz.	0.50	97	67	104.0
131	Bismuth Subgallate ¹	U. S. P. X	1 oz.	0.25	6	5	17.4
24	Bismuth Subnitrate ¹	U. S. P. X	4 oz.	0.46	176	76	131.9
19	Caffeine ¹	U. S. P. X	1 oz.	0.29	214	78	73.3
9	Caffeine Citrated ¹	U. S. P. X	4 oz.	0.72	451	163	201.7
81	Calamine Prepared ¹	N. F. V	1 lb.	0.47	23	17	46.1
127	Calcium Bromide	U. S. P. X	1 oz.	0.17	4	9	5.8
60	Calcium Carbonate, Pre- cipitated ¹	U. S. P. X	1 lb.	0.21	39	41	33.4
111	Calcium Chloride	U. S. P. X	4 oz.	0.20	15	5	8.3
120	Calcium Gluconate	.....	4 oz.	0.35	1	13	7.1
155	Calcium Glycero- phosphate	U. S. P. X	1 oz.	0.24	5	1	7.4
82	Calcium Lactate ¹	U. S. P. X	4 oz.	0.29	13	27	28.4
31	Calomel ¹	U. S. P. X	4 oz.	0.47	110	91	81.8
29	Camphor ¹	U. S. P. X	1 oz.	0.15	128	89	85.0
44	Camphor Monobromate ¹	U. S. P. IX	4 oz.	0.70	98	23	46.2
109	Carminc	N. F. V	1 oz.	0.51	15	8	7.0
83	Cerium Oxalate ¹	U. S. P. IX	4 oz.	0.20	24	13	41.6
93	Charcoal ¹	U. S. P. X	4 oz.	0.22	27	6	20.8
73	Chloral Hydrate ¹	U. S. P. X	4 oz.	0.38	37	16	44.3
102	Chloroform	U. S. P. X	1 lb. and 4 oz.	0.75	14	11	9.3
99	Cinchonidine	.....	1 oz.	0.95	28	...	...
37	Cinchonidine Sulphate	U. S. P. X	1 oz.	0.62	160	...	13.8
132	Cinchonine	U. S. P. X	1 oz.	0.67	10	1	...
98	Cinchonine Sulphate	N. F. V	1 oz.	0.50	22	7	3.8
96	Cinchophen ¹	U. S. P. X	1 oz.	0.34	20	12	27.9
56	Cocaine ⁶	U. S. P. X	1/8 oz.	1.63	33	59	2.2
30	Cocaine Hydrochloride ^{1,6}	U. S. P. X	1/8 oz.	1.44	71	145	105.0
84	Cocaine Nitrate ⁶	.....	1/8 oz.	1.55	...	37	3.0
133	Cocaine Sulphate ⁶	.....	1/8 oz.	1.50	5	6	1.4
51	Codeine ⁶	U. S. P. X	1/8 oz.	1.84	56	44	2.3
12	Codeine Phosphate ^{1,6}	U. S. P. X	1/4 oz.	2.45	361	100	99.6

3	Codeine Sulphate ^{1,6}	U. S. P. X	1/4 oz.	2.69	610	433	633.7
95	Cotarnine Chloride (Stypticin) ⁶	U. S. P. X	1/8 oz.	1.38	21	12	8.1
70	Creosote (Beechwood) ¹	U. S. P. X	4 oz.	0.40	45	12	14.8
116	Creosote Carbonate	U. S. P. X	1 oz.	0.26	10	6	6.7
97	Digitalin	.....	15 gr.	1.10	16	16	5.7
41	Ephedrine	.....	1/8 oz.	0.81	72	57	0.7
128	Ephedrine Hydrochloride	.....	1/8 oz.	0.70	6	7	7.0
34	Ephedrine Sulphate ¹	.....	1/8 oz.	0.69	67	109	68.1
134	Eserine (Physostigmine)	.....	1 gr.	0.25	...	11	...
150	Eserine Sulphate (Phy- sostigmine Sulphate)	U. S. P. VIII	5 gr.	0.90	1	6	1.8
49	Ethylmorphine Hydro- chloride (Dionin) ^{1,6}	U. S. P. X	1/8 oz.	1.60	34	69	67.9
13	Glycerin ¹	U. S. P. X	10 lbs.	2.00	324	132	259.3
103	Guaiacol	U. S. P. X	1 oz.	0.29	23	2	8.9
85	Guaiacol Carbonate ¹	U. S. P. X	1 oz.	0.77	20	17	28.8
76	Homatropine Hydrobro- mide ¹	U. S. P. X	5 gr.	0.45	10	34	29.8
57	Iodine (Resublimed) ¹	U. S. P. X	1 oz.	0.46	23	64	26.2
143	Iodoform (two 1/8 oz.)	U. S. P. X	1/4 oz.	0.30	2	6	1.7
65	Iron Reduced ¹	U. S. P. X	1 oz.	0.20	37	31	19.7
156	Iron (Ferrous) Sulphate (Copperas)	U. S. P. X	1 lb.	0.24	5	1	3.6
112	Lead Acetate	U. S. P. X	1 lb.	0.35	10	8	7.0
107	Lithium Citrate	N. F. V	1 oz.	0.24	24	...	2.4
101	Magnesium Carbonate ¹	U. S. P. X	1 lb.	0.36	6	20	39.5
50	Magnesium Oxide (light) ¹	U. S. P. X	1 lb.	0.69	48	53	59.5
71	Magnesium Oxide (Heavy) ¹	U. S. P. X	1 lb.	0.69	57	...	36.5
69	Magnesium Sulphate ¹	U. S. P. X	1 lb.	0.23	16	43	18.8
144	Magnesium Sulphate Anhydrous	U. S. P. X	4 oz.	0.31	8	...	0.7
104	Manganese Dioxide (Pre- cipitate)	U. S. P. IX	4 oz.	0.28	25	...	3.3
26	Menthol ¹	U. S. P. X	1 oz.	0.44	110	130	140.2
68	Mercury Ammoniated ¹	U. S. P. X	1 oz.	0.23	15	45	32.8
61	Mercury Chloride, Cor- rosive (Corrosive Sub- limate) ¹	U. S. P. X	1 oz.	0.18	25	53	43.2
121	Mercury Iodide, Red (Binioidide)	U. S. P. X	1 oz.	0.42	9	5	5.0
113	Mercury Iodide, Yellow (Protoiodide)	U. S. P. X	1 oz.	0.43	10	7	3.1
74	Mercury Oxide Yellow ¹	U. S. P. X	1 oz.	0.34	28	25	13.7
40	Methenamine ¹	U. S. P. X	4 oz.	0.24	124	10	65.7
138	Methylene Blue	U. S. P. X	1 oz.	0.30	10	...	2.7
27	Milk Sugar (Lactose) ¹	U. S. P. X	1 lb.	0.47	129	104	96.3
151	Morphine ⁶	U. S. P. X	1/8 oz.	1.50	6	...	1.2
28	Morphine Sulphate ^{1,6}	U. S. P. X	1/8 oz.	1.45	197	31	93.0
77	Naphthalene	U. S. P. VIII	1 lb.	0.23	...	44	0.3
23	Phenobarbital ¹	U. S. P. X	1 oz.	0.78	174	82	184.9
139	Phenobarbital Sodium	.....	1/2 oz.	0.92	3	7	30.5
7	Phenol ¹	U. S. P. X	1 lb.	0.43	300	353	230.4
20	Phenolphthalein ¹	U. S. P. X	4 oz.	0.33	188	91	97.3
25	Phenyl Salicylate (Salol) ¹	U. S. P. X	4 oz.	0.39	160	84	131.0

48	Pilocarpine Hydrochloride ¹	U. S. P. X	5 gr.	0.26	23	81	21.2
45	Potassium Acetate ¹	U. S. P. X	4 oz.	0.24	79	36	46.3
114	Potassium Bicarbonate ¹	U. S. P. X	1 lb.	0.31	9	8	17.6
52	Potassium Bromide ¹	U. S. P. X	4 oz.	0.18	67	33	53.5
58	Potassium Chlorate ¹	U. S. P. X	4 oz.	0.22	63	24	32.7
151	Potassium Chloride	N. F. V	1 lb.	0.30	6	1	3.4
55	Potassium Citrate ¹	U. S. P. X	4 oz.	0.24	71	22	96.0
15	Potassium Iodide ¹	U. S. P. X	4 oz.	0.73	279	149	157.8
89	Potassium Permanganate ¹	U. S. P. X	4 oz.	0.17	19	15	22.0
54	Potassium Sulphocyanate	.....	4 oz.	0.33	79	16	12.7
161	Potassium Sulphurated (Potassium Sulphide)	U. S. P. X	4 oz.	0.28	...	5	5.1
63	Quinine Bisulphate	U. S. P. X	1 oz.	0.76	67	5	16.3
145	Quinine Dihydrochloride	U. S. P. X	1 oz.	0.86	5	3	1.1
122	Quinine Hydrobromide	U. S. P. X	1 oz.	0.81	2	12	8.9
72	Quinine Hydrochloride	U. S. P. X	1 oz.	0.83	33	23	11.0
123	Quinine Salicylate	U. S. P. IX	1 oz.	0.83	9	5	9.2
22	Quinine Sulphate ¹	U. S. P. X	1 oz.	0.65	169	96	111.4
32	Resorcinol (Resorcin) ¹	U. S. P. X	1 oz.	0.27	32	167	56.9
152	Santonin	U. S. P. X	1/8 oz.	1.32	5	2	4.9
162	Silver Iodide	.....	1 oz.	0.95	...	5	0.5
124	Silver Nitrate ¹	U. S. P. X	1 oz.	0.39	11	3	10.4
117	Sodium Acetate	U. S. P. X	4 oz.	0.21	15	1	3.7
163	Sodium Arsenate	N. F. V	4 oz.	0.24	5	...	1.9
8	Sodium Benzoate ¹	U. S. P. X	4 oz.	0.23	507	139	102.1
10	Sodium Bicarbonate ¹	U. S. P. X	1 lb.	0.14	334	234	352.6
36	Sodium Borate ¹ (4 oz. crystals, 4 oz. powders)	U. S. P. X	8 oz.	0.40	23	139	59.5
5	Sodium Bromide ¹	U. S. P. X	1 lb.	0.53	466	301	310.5
105	Sodium Chloride ¹	U. S. P. X	1 lb.	0.11	15	10	12.4
33	Sodium Citrate ¹	U. S. P. X	4 oz.	0.19	164	33	44.5
158	Sodium Hypophosphite	N. F. V	4 oz.	0.33	...	6	1.2
38	Sodium Iodide ¹	U. S. P. X	4 oz.	1.02	89	52	46.2
94	Sodium Nitrite	U. S. P. X	4 oz.	0.20	22	11	7.9
118	Sodium Perborate	N. F. V	1 lb.	0.10	1	14	2.7
119	Sodium Phosphate ¹	U. S. P. X	1 lb.	0.26	6	9	16.2
115	Sodium Phosphate Monobasic (Sodium Biphosphate) ¹	U. S. P. X	4 oz.	0.27	7	10	12.7
6	Sodium Salicylate ¹	U. S. P. X	1 lb.	0.75	576	156	242.0
135	Sodium Sulphate (Glauber's Salt)	U. S. P. X	1 lb.	0.25	2	9	6.6
159	Sodium Sulphocyanate	.....	1 oz.	0.19	5	1	2.5
64	Starch ¹	U. S. P. X	1 lb.	0.31	12	57	33.2
90	Strontium Bromide ¹	U. S. P. IX	4 oz.	0.27	15	19	41.7
164	Strontium Salicylate	U. S. P. X	1 oz.	0.22	5	...	11.7
125	Strychnine	N. F. V	1/8 oz.	0.19	1	13	2.5
110	Strychnine Nitrate	U. S. P. X	1/8 oz.	0.20	21	1	4.3
14	Strychnine Sulphate ¹	U. S. P. X	1/8 oz.	0.16	310	140	134.8
80	Sucrose ¹	U. S. P. X	1 lb.	0.27	41	...	18.7
129	Sulphonethylmethane (Trional)	U. S. P. X	1 oz.	0.50	2	11	4.1
78	Sulphonmethane (Sulphonal)	U. S. P. X	1 oz.	0.40	3	39	8.5

39	Sulphur Precipitated ¹	U. S. P. X	1 lb.	0.36	32	103	47.6
153	Sulphur Washed	U. S. P. X	1 lb.	0.22	7	...	5.6
142	Talcum	U. S. P. X	1 lb.	0.17	3	6	11.0
108	Terpin Hydrate ¹	U. S. P. X	4 oz.	0.21	21	3	12.8
146	Theophyllin	U. S. P. X	1 oz.	1.65	...	8	3.3
136	Thymol	U. S. P. X	1 oz.	0.26	2	9	9.1
66	Veronal (Barbital)	U. S. P. X	1 oz.	3.00	48	18	...
160	Zinc Acetate	U. S. P. X	4 oz.	0.18	6	...	1.8
42	Zinc Oxide ¹	U. S. P. X	1 lb.	0.39	49	80	102.1
126	Zinc Phenolsulphonate	U. S. P. X	4 oz.	0.17	5	9	7.0
88	Zinc Phosphide	.....	1 oz.	0.24	35	...	1.8
87	Zinc Sozoiodolate (Sozo-iodole-Zinc)	.....	25 Gm.	3.25	2	34	3.6
21	Zinc Sulphate ¹	U. S. P. X	4 oz.	0.20	42	229	117.3
Total				\$93.51	12,723	9364	

NOTE: These 164 leading chemical items have an average cost of \$0.57.

¹ These items appeared as leading ingredients in the prescriptions studied in each of the four states represented in the "U. S. P.-N. F. Ingredient Survey." See text following Table XLII.

² This item was prescribed under the name "Phenacetin" 441 times in prescriptions from commercial type stores and 223 times in professional store prescriptions.

³ This item was prescribed as a manufacturer's specialty 92 times in prescriptions from commercial type stores and 88 times in professional store prescriptions.

⁴ See foot-notes 121 and 122 on pages 128 and 129 of "The Prescription Ingredient Survey," published by the AMERICAN PHARMACEUTICAL ASSOCIATION.

⁵ Also see "Veronal," which is listed separately to show the demand under each name.

⁶ Items so marked come within the scope of the Federal Narcotic Law. An official order blank and a monthly report is absolutely necessary.

TABLE XXXIX.—LIST OF 234 GALENICALS AND RELATED ITEMS OCCURRING 5 TIMES OR MORE PER 10,000 PRESCRIPTIONS FROM PROFESSIONAL AND COMMERCIAL TYPE DRUG STORES.

Rank in Group.	Leading Galenicals.	Source of Authority.	Unit.	Unit Price.	Number of Occurrences per 10,000 Prescriptions.		
					St. Louis Commercial Type Drug Stores.	St. Louis Professional Pharmacies.	Average in Pharmacies throughout the U. S.
102	Aloin ¹	U. S. P. X	1 oz.	\$0.18	12	14	12.6
<i>Capsules.</i>							
183	Aspirin, Phenacetine and Caffeine	.....	100	0.46	4	5	6.8
227	Elastic Copaiba, 10 min.	.....	12	0.23	...	5	1.2
148	Corpus Luteum (5 and 2 grains)	.....	50	3.65	4	9	3.2
125	Digitalis	U. S. P. X	100	0.85	...	18	1.4
177	Ephedrine Sulphate ³ / ₈ gr.	.....	40	0.85	5	5	13.6
229	Iron, Quinine and Strychnine	.....	100	0.60	...	5	0.7
<i>Concentrations or Resinoids.</i>							
103	Cascarin	.....	1 oz.	0.42	23	3	6.2
192	Podophyllin	U. S. P. X	1 oz.	0.89	6	3	6.8

Elixirs.

138	Calisaya ¹	N. F. V	1 pt.	0.87	11	4	14.8
217	Five Bromides	N. F. V	1 pt.	0.99	...	6	3.4
119	Gentian	N. F. V	1 pt.	1.08	8	11	4.9
83	Gentian Glycerinated ¹	N. F. V	1 pt.	0.96	34	3	23.5
84	Glycerophosphates Comp. ¹	N. F. V	1 pt.	1.11	23	14	27.6
121	Glycerophosphates Lime and Soda ¹	N. F. V	1 pt.	1.08	5	14	16.8
22	Iron, Quinine and Strychnine ¹	N. F. V	1 pt.	1.05	93	44	61.6
1	Lactated Pepsin	.....	1 gal.	2.25	290	70	324.3
39	Pepsin (Digestive) Compound ¹	N. F. V	1 pt.	0.60	56	41	
28	Pepsin and Rennin Compound (Essence of Pepsin) ¹	N. F. V	1 pt.	0.85	63	56		51.2
75	Phenobarbital ¹	.....	1 pt.	1.08	20	23	138.0
150	Potassium Bromide	N. F. V	1 pt.	0.99	13	..	10.7
162	Salicylic Acid Compound	.....	1 pt.	0.96	6	6	0.5
152	Saw Palmetto and Santal	N. F. V	1 pt.	0.99	8	5	3.8
25	Simple ¹	U. S. P. X	1 pt.	0.60	107	28	63.7
36	Sodium Bromide	N. F. V	1 pt.	0.90	54	47	30.7
93	Sodium Salicylate	N. F. V	1 pt.	0.97	6	27	4.8
163	Sodium Sulphocyanate	N. F. V	1 pt.	0.81	4	8	2.7
48	Terpin Hydrate ¹	N. F. V	1 pt.	2.19	53	18	50.0
23	Terpin Hydrate and Codeine ^{1,2}	N. F. V	1 pt.	2.19	91	45	45.0
198	Terpin Hydrate and Creosote	N. F. V	1 pt.	1.05	8	...	0.8
181	Terpin Hydrate and Heroin	N. F. IV	1 pt.	2.20	3	7	19.5
165	Three Bromides ¹	N. F. V	1 pt.	0.93	12	...	31.7

Extracts (Powdered and Solid).

154	Aconite	U. S. P. IX	1 oz.	0.60	8	4	4.1
27	Belladonna ¹	U. S. P. X	1 oz.	0.54	94	28	79.1
20	Cascara Sagrada ¹	U. S. P. X	1 oz.	0.45	32	128	40.0
226	Cinchona	N. F. IV	1 oz.	0.90	5	...	0.5
203	Colocynth Compound	U. S. P. X	1 oz.	0.48	7	...	7.9
146	Ergot ¹	U. S. P. IX	1 oz.	1.20	12	2	4.7
82	Ergotine (Bonjean)	N. F. V	1 oz.	1.79	22	15	12.0
106	Gentian	N. F. V	1 oz.	0.36	10	15	9.9
72	Hyoseyamus ¹	U. S. P. X	1 oz.	0.60	19	25	35.3
34	Nux Vomica ¹	U. S. P. X	1 oz.	0.54	53	50	35.7
141	Opium ³	N. F. V	1/2 oz.	3.12	6	9	12.0
223	Valerian	.....	1 oz.	0.72	...	6	4.3

Fluidextracts.

215	Buchu	U. S. P. X	1/4 oz.	0.87	6	...	2.1
54	Cascara Sagrada ¹	U. S. P. X	1 pt.	1.34	28	30	37.5
19	Cascara Sagrada Aro- matic ¹	U. S. P. X	1 pt.	1.44	112	49	70.5
204	Condurango	N. F. V	4 oz.	0.67	...	7	2.5
71	Ergot ¹	U. S. P. X	4 oz.	0.87	33	11	37.4
170	Hydrastis	U. S. P. X	1 oz.	0.72	6	5	6.8

149	Hyoscyamus	U. S. P. X	4 oz.	0.72	13	...	3.8
219	Kola	N. F. V	4 oz.	0.63	...	6	1.1
88	Licorice	U. S. P. X	4 oz.	0.42	12	22	11.2
222	Triticum	N. F. V	4 oz.	0.45	6	...	2.3
95	Valerian	N. F. V	4 oz.	0.78	31	...	3.1
<i>Glandular Substances, Dessicated.</i>							
68	Corpus Luteum ¹	.....	1 oz.	3.19	12	34	11.1
33	Ovarian Substance Des- sicated ¹	.....	1 oz.	2.13	26	80	43.2
191	Parathyroid	.....	1/8 oz.	2.55	1	8	2.7
58	Pituitary Substance ¹	.....	1 oz.	3.40	9	48	32.2
136	Suprarenal Gland	U. S. P. IX	1 oz.	1.70	3	13	4.8
4	Thyroid ¹	U. S. P. X	1 oz.	0.85	66	209	88.6
126	Infusion Digitalis	U. S. P. X	1 pt.	0.50	8	9	8.8
43	Inhalant, Ephedrine ¹	.....	1 oz.	0.80	39	47	65.2
60	Inhalant, Ephedrine Compound ¹	.....	1 oz.	0.80	56	..	15.6
<i>Liniment.</i>							
216	Camphor	U. S. P. X	1 pt.	1.05	6	...	4.4
111	Chloroform ¹	U. S. P. X	1 pt.	0.84	23	1	12.5
135	Soft Soap	U. S. P. X	1 pt.	0.84	13	3	3.4
139	Liver Extract	.....	1 box (24 vials)	4.55	6	9	6.0
<i>Lotion.</i>							
76	Calamine ¹	N. F. V	2 pt.	0.40	24	17	43.9
107	Resorcin Compound	.....	1 pt.	0.40	...	25	1.2
50	Mass Iron Carbonate ¹	U. S. P. X	4 oz.	0.22	14	48	22.6
30	Mass Iron Carbonate Saccharated ¹	U. S. P. X	4 oz.	0.22	104	9	21.2
129	Milk of Bismuth ¹	N. F. V	1 pt.	0.85	12	5	24.8
2	Milk of Magnesia ¹	U. S. P. X	1 pt.	0.42	208	109	76.0
<i>Mixtures.</i>							
105	Chalk ¹	U. S. P. X	1 pt.	0.50	21	4	19.4
14	Licorice (Glycyrrhiza) Compound ¹	U. S. P. X	1 pt.	0.64	124	52	89.4
89	Pectoral	N. F. V	1 pt.	0.85	31	3	16.7
117	Rhubarb and Soda ¹	N. F. V	1 pt.	0.67	5	15	52.3
113	Mucilage of Acacia ¹	U. S. P. X	1 pt.	0.25	19	5	10.8
11	Oil of Rose Compound ^{3,4}	.....	4 oz.	1.00	11	188	20.8
230	Oil of Rose Compound with Codeine ^{3,4}	.....	1 oz.	0.67	5	...	0.4
<i>Ointments and Ointment Bases.</i>							
200	Acid Boracic	U. S. P. X	1 lb.	0.90	...	7	12.0
214	Balm Analgesic	.....	(tube) 1 oz.	0.21	5	1	7.5
131	Belladonna	U. S. P. X	1 lb.	1.49	5	11	9.6
224	Benzoinated Lard	U. S. P. X	1 lb.	0.56	5	...	10.1
159	Diachylon (Lead Oleate)	U. S. P. X	1 lb.	1.62	12	...	3.7
145	Ephedrine Jelly	.....	1/2 oz. (1 tube)	0.36	5	9	5.9
40	Lanolin, Hydrous ¹	U. S. P. X	1 lb.	0.34	55	42	81.5
35	Lassars Zinc Paste	N. F. V	1 lb.	0.85	3	98	28.0
78	Mercury Ammoniated ¹	U. S. P. X	1 lb.	1.44	23	18	56.4

57	Mercury Yellow Oxide ¹	U. S. P. X	4 tubes	0.44	8	49	34.8
37	Petrolatum ¹	U. S. P. X	1 lb.	0.25	42	58	92.0
92	Petrolatum, White ¹	U. S. P. X	1 lb.	0.50	23	10	71.2
26	Pine Tar	U. S. P. X	1 lb.	1.08	10	116	13.0
122	Resorcinol Compound	N. F. V	1 lb.	2.40	2	17	4.4
46	Rose Water ¹	U. S. P. X	1 lb.	0.94	39	34	57.9
233	Sulphur	U. S. P. X	1 lb.	1.20	5	...	10.0
108	Sulphur Compound	N. F. V	1 lb.	1.20	...	25	0.8
199	Whitfield	.....	1 lb.	1.50	1	7	3.0
79	Zinc Oxide ¹	U. S. P. X	1 lb.	0.72	26	15	28.4

Pills.

65	Blaud	U. S. P. X	100	0.30	32	20	12.2
175	Blaud Compound	.....	100	0.33	8	2	2.2
157	Cathartic Compound	.....	1000	3.30	12	...	2.2
210	Iron, Quinine and Strychnine	.....	100	0.63	7	...	1.0
140	Mercury Protoiodide	.....	100				
			¹ / ₄ gr.	0.33	8	7	2.6
189	Mixed Treatment	.....	100	1.37	1	8	1.2
101	Strychnine Sulphate	.....	100	0.27	6	21	4.0

Powders.

110	Antiseptic	N. F. V	4 oz.	0.30	15	9	4.6
62	Ipecac and Opium ^{1,3}	U. S. P. X	1 oz.	0.36	19	36	36.5
128	Mercury and Chalk	U. S. P. X	4 oz.	0.30	12	5	1.6
98	Pepsin ¹	U. S. P. X	1 oz.	0.43	9	20	..
100	Pepsin Lactated	N. F. III	1 oz.	0.30	13	14	2.8
179	Pepsin Saccharated	N. F. V	1 oz.	0.21	9	1	3.0
212	Soft Soap	U. S. P. X	1 lb.	0.76	6	1	...

Solutions.

109	Alkaline Aromatic	N. F. V	1 pt.	0.60	15	9	9.7
61	Ammonium Acetate ¹	U. S. P. X	4 oz.	0.35	46	9	24.2
193	Antiseptic	N. F. V	1 pt.	0.43	7	1	4.1
137	Boric Acid	.....	1 pt.	0.30	7	8	...
155	Boroglyceride (Glycerite of Boroglycerin)	U. S. P. X	1 pt.	1.44	4	8	4.6
87	Calcium Hydroxide (Lime Water) ¹	U. S. P. X	1 gal.	0.70	17	17	40.6
56	Coal Tar (Liquor Carbonis Detergens) ¹	N. F. V	8 oz.	0.83	5	52	27.0
112	Ephedrine Sulphate ¹	.....	1 oz.	0.51	24	...	34.4
207	Ferric (Iron) Chloride	.....	1 pt.	0.60	7	...	0.7
49	Iodine Compound ¹	U. S. P. X	4 oz.	0.40	28	37	21.6
171	Iodine Phenolated (Boulton's Solution)	N. F. V	1 oz.	0.35	7	4	2.9
209	Iron and Ammonium Acetate (Basham's Mixture) ¹	U. S. P. X	1 pt.	1.00	6	1	22.7
127	Iron Peptonized and Manganese ¹	N. F. V	1 pt.	0.85	12	5	17.2
220	Lead Subacetate (Dilute)	N. F. V	1 pt.	0.30	6	...	0.7
42	Normal Salt	U. S. P. X	1 gal.	0.36	37	51	19.5
16	Potassium Arsenite (Fowler's Solution) ¹	U. S. P. X	1 pt.	0.57	122	49	73.7
231	Potassium Citrate	U. S. P. X	1 pt.	0.30	5	...	4.8

142	Sodium Borate Compound (Dobell's) ¹	N. F. V	1 pt.	0.30	6	9	14.9
67	Surgical Solution of Chlorinated Soda (Dakin's Solution) ¹	U. S. P. X	1 qt.	0.36	51	...	0.5
<i>Spirits.</i>							
124	Aromatic Ammonia	U. S. P. X	1 pt.	1.20	12	6	37.1
169	Camphor	U. S. P. X	1 pt.	1.49	4	7	9.3
77	Chloroform ¹	U. S. P. X	1/2 pt.	0.40	34	7	25.0
41	Nitrous Ether ¹	U. S. P. X	1 pt.	0.80	83	13	41.3
74	Nitroglycerine	U. S. P. X	1 oz.	0.30	17	27	8.5
173	Peppermint ¹	U. S. P. X	1 pt.	1.99	7	4	16.0
<i>Syrups.</i>							
17	Simple ¹	U. S. P. X	1 gal.	0.72	85	84	89.5
52	Acacia	U. S. P. IX	1 pt.	0.25	45	15	15.0
143	Ammonium Hypophosphite	N. F. V	1 pt.	0.72	12	2	8.2
98	Bromides	N. F. V	1 pt.	1.14	29	...	5.1
13	Cocillana Compound ¹	....	1 pt.	0.85	162	14	94.0
115	Cocoa	N. F. V	1 pt.	0.30	21	...	6.4
133	Euphorbia Compound	....	1 pt.	0.90	16	...	5.8
18	Ginger	U. S. P. X	1 pt.	0.48	160	6	19.2
134	Hydriodic Acid ¹	U. S. P. X	1 pt.	0.72	10	6	36.3
94	Hypophosphites	N. F. V	1 pt.	0.78	31	...	7.3
10	Hypophosphites Compound ¹	N. F. V	1 pt.	0.81	188	13	30.8
47	Ipecac ¹	U. S. P. X	1 pt.	1.05	58	14	48.4
194	Ipecac and Opium ³	N. F. V	1 pt.	1.44	7	1	8.5
86	Iron Iodide ¹	U. S. P. X	1 pt.	1.20	12	24	28.0
55	Lemon (Citric Acid) ¹	U. S. P. X	1 pt.	0.35	49	9	27.2
44	Licorice	N. F. V	1 pt.	0.60	71	9	14.8
32	Orange ¹	U. S. P. X	1 pt.	0.35	104	2	54.5
81	Raspberry ¹	N. F. V	1 pt.	0.35	37	2	25.3
180	Rhubarb Aromatic	U. S. P. X	1 pt.	0.78	6	4	5.3
3	Sarsaparilla Compound ¹	U. S. P. X	1 pt.	1.14	257	36	64.6
153	Senega	U. S. P. X	1 pt.	0.90	7	6	5.9
71	Squill ¹	U. S. P. X	1 pt.	0.75	35	10	32.7
8	Tolu ¹	U. S. P. X	1 pt.	0.72	214	30	109.7
221	Trifolium Compound	N. F. V	1 pt.	1.05	6	...	5.3
24	White Pine Compound with Tar	....	1 pt.	0.72	57	79	...
6	Wild Cherry ¹	U. S. P. X	1 pt.	0.72	172	82	121.8
63	Yerba Santa	N. F. V	1 pt.	0.96	51	4	11.2
<i>Tablets.</i>							
130	Amidopyrine ¹	....	100	0.87	4	12	24.3
213	Atropine Sulphate	....	100	0.21	1	5	8.7
184	Barbital	....	110 (1 tube 10, 1 bottle 100)	0.95	3	6	11.2
167	Blaud Compound	....	100	0.28	2	9	7.9
168	Blaud	....	100	0.24	2	9	3.8
225	Calcium Carbonate	....	100	0.27	...	5	3.7
132	Calcium Lactate	....	100	0.30	4	12	7.7
186	Calomel	N. F. V	500 (5 assorted sizes)	1.05	7	2	7.2

91	Cinchophen ¹	.....	200 (100—5 grs., 100— 7 ¹ / ₂ grs.)	0.96	19	14	29.6
187	Codeine Phosphate (Hypo) ³	.....	200	1.32	1	8	6.1
59	Codeine Sulphate ^{1,3}	.....	100	2.55	19	37	92.2
188	Corpus Luteum	.....	50—5 grs.	2.17	2	7	13.6
205	Coryza	.....	100	0.35	1	6	4.3
206	Digitalin	.....	100— ¹ / ₅₀ gr.	0.39	...	7	1.3
160	Digitalis	.....	100	0.32	...	12	7.3
114	Dobell	.....	100	0.47	1	21	2.8
178	Mercury Bichloride (Corrosive)	U. S. P. IX	100	0.35	4	6	4.6
116	Mercury and Chalk	.....	100—1 gr.	0.21	9	11	2.7
211	Mercury Protoiodide	.....	100— ¹ / ₄ gr.	0.21	...	7	4.2
51	Methenamine ¹	.....	200 (100—5 grs., 100— 7 ¹ / ₂ grs.)	0.69	51	10	25.3
73	Methenamine and So- dium Acid Phosphate	.....	100	0.42	21	23	14.7
195	Mixed Treatment	.....	100	0.21	7	1	1.4
29	Morphine Sulphate ^{1,3}	.....	4 tubes assorted	1.56	25	91	115.5
196	Morphine Sulphate (Hypo Units) ³	.....	6— ¹ / ₄ grs. 1 pack- age)	1.49	...	8	
190	Neo Cinchophen	.....	20—5 grs.	0.45	2	7	
172	Ovarian Substance ¹	.....	100—5 grs.	2.55	2	9	20.0
53	Phenobarbital ¹	.....	200 (100— ¹ / ₂ gr., 100—1 ¹ / ₂ grs.)	1.24	16	44	105.5
232	Pituitary Whole Gland	.....	100—1 gr.	1.67	...	5	1.3
151	Rhinitis (Full Strength)	.....	100	0.36	4	9	4.8
118	Sodium Salicylate	.....	100	0.27	5	15	5.9
164	Strychnine Sulphate ¹	.....	600 assort- ed	1.26	2	10	12.7
38	Thyroid (¹ / ₄ , ¹ / ₂ , 1, 2 grs.) 100 each ¹	.....	400	1.75	25	75	54.0
<i>Tincture.</i>							
80	Aconite ¹	U. S. P. X	4 oz.	0.54	26	14	33.8
15	Belladonna ¹	U. S. P. X	1 pt.	1.44	87	85	177.5
185	Benzoin	U. S. P. X	4 oz.	0.66	9	...	12.0
85	Benzoin Compound ¹	U. S. P. X	4 oz.	0.60	20	16	29.3
156	Calendula	N. F. V	4 oz.	0.95	12	...	3.0
201	Capsicum	U. S. P. X	4 oz.	0.66	5	2	10.4
176	Cardamom	U. S. P. X	4 oz.	0.45	10	2	3.8
99	Cardamom Compound ¹	U. S. P. X	1 pt.	1.56	12	15	43.9
157	Cinchona	U. S. P. X	4 oz.	0.63	2	10	3.1
144	Cudbear ¹	N. F. V	4 oz.	0.54	11	3	17.8
7	Digitalis ¹	U. S. P. X	1 pt.	0.80	177	72	156.1
208	Gelsemium	N. F. V	4 oz.	0.54	5	2	5.2
228	Gentian ¹	.....	4 oz.	0.42	5	...	3.4
120	Gentian Compound ¹	U. S. P. X	4 oz.	0.42	11	8	70.8
70	Hyoscyamus ¹	U. S. P. X	4 oz.	0.48	20	25	95.5

96	Iodine ¹	U. S. P. X	2 pts.	2.35	21	9	20.1
64	Iron Chloride ¹	U. S. P. X	1 pt.	1.44	30	23	27.9
161	Lobelia ¹	U. S. P. X	4 oz.	0.51	7	5	11.7
5	Nux Vomica ¹	U. S. P. X	1 pt.	1.32	150	120	234.7
31	Opium ^{1,3}	U. S. P. X	4 oz.	1.74	67	43	41.2
21	Opium Camphorated ^{1,2} (Paregoric)	U. S. P. X	1 pt.	1.32	135	22	128.2
234	Strophanthus	U. S. P. X	4 oz.	0.87	5	...	6.6
123	Viosterol ¹ (asst. mfgs. 5-cc. vials)	.....	1/4 oz.	1.50	4	15	31.0
<i>Water.</i>							
174	Ammonia	U. S. P. X	1 lb.	0.27	10	...	1.7
	Anise	U. S. P. X	1 pt.	0.36	15	10	7.2
9	Camphor ¹	U. S. P. X	1 pt.	0.36	50	190	71.4
66	Chloroform ¹	U. S. P. X	1 pt.	0.50	17	35	16.7
90	Cinnamon ¹	U. S. P. X	1 pt.	0.36	22	11	20.4
12	Peppermint ¹	U. S. P. X	1 pt.	0.48	169	20	130.7
45	Rose ¹	U. S. P. X	1 pt.	0.72	45	31	53.7
197	Spearmint	U. S. P. X	1 pt.	0.36	6	2	2.4
147	Witch Hazel	N. F. V	1 gal.	1.26	4	10	12.3
<i>Wine.</i>							
182	Antimony	U. S. P. VIII	4 oz.	0.51	7	2	3.8
202	Colchicum	N. F. IV	4 oz.	0.57	7	...	3.8
158	Colchicum Seed ¹	N. F. IV	4 oz.	0.55	5	7	13.4
218	Ipecac	U. S. P. VIII	4 oz.	0.72	6	...	11.5
Total				\$206.15	6713	4644	

NOTE: These 234 galenicals and pharmaceuticals have an average cost of \$0.88.

¹ These items appeared as leading ingredients in the prescriptions studied in each of the four states represented in the "U. S. P.-N. F. Ingredient Survey." See text following Table XLII. ² An exempt narcotic. Official order blank not required, however record of sales must be kept. ³ Items so marked come within the scope of the Federal Narcotic Law. An official order blank and a monthly report is absolutely necessary. ⁴ A private formula.

TABLE XL.—LIST OF 33 BOTANICALS, OILS, RELATED PRODUCTS AND OTHER MISCELLANEOUS INGREDIENTS OCCURRING FIVE TIMES AND OVER, PER 10,000 PRESCRIPTIONS.

Group Rank.	Source of Authority.	Unit.	Unit Price.	Number of Occurrences per 10,000 Prescriptions.			
				St. Louis Commercial Type Stores.	St. Louis Professional Pharmacies.	Average in Pharmacies throughout the U. S.	
<i>Botanical Drugs Crude and Powdered.</i>							
2	Acacia Granulated ¹	U. S. P. X	1 lb.	\$0.49	79	38	28.0
27	Aloes Powdered	U. S. P. X	1 oz.	0.06	7	1	2.0
8	Asafetida	U. S. P. X	1 oz.	0.20	37	1	5.7
16	Balsam Peru	U. S. P. X	2 oz.	0.50	13	8	...
10	Capsicum Powdered	U. S. P. X	1 oz.	0.10	25	7	8.2
18	Digitalis Powdered ¹	U. S. P. X	1 oz.	0.20	..	18	26.7
12	Ipecac Powdered	U. S. P. X	1 oz.	0.20	15	15	15.9
38	Jalap Powdered	U. S. P. X	1 oz.	0.06	5	..	1.6
28	Licorice Powdered	U. S. P. X	4 oz.	0.15	8	..	2.9
9	Opium Powdered ^{1,2}	U. S. P. X	1/2 oz.	0.73	20	16	21.6
7	Rhubarb Powdered ¹	U. S. P. X	1 oz.	0.42	24	15	24.6
33	Psyllium Seed	.....	5 lbs.	1.50	..	5	1.6

*Oils.**Fixed or Expressed.*

5	Castor ¹	U. S. P. X	1 gal.	1.30	12	41	24.9
11	Cocoa Butter ¹	U. S. P. X	1 lb.	0.35	13	18	32.7
14	Cod Liver ¹	U. S. P. X	1 pt.	0.50	5	21	9.7
29	Linseed	U. S. P. X	2 pts.	0.30	5	2	0.9
15	Olive ¹	U. S. P. X	2 pts.	1.18	3	20	29.8

Volatile.

19	Bergamot	N. F. V	1 oz.	0.28	9	9	5.0
21	Cinnamon	U. S. P. X	1/2 oz.	0.80	13	3	8.9
13	Eucalyptol ¹	U. S. P. X	1/4 lb.	0.34	18	9	9.9
6	Eucalyptus ¹	U. S. P. X	1 lb.	0.45	15	24	24.0
22	Fennel ¹	U. S. P. X	1 lb.	0.30	..	10	1.7
3	Gaultheria (Methyl Salicylate) ¹	U. S. P. X	1 lb.	0.72	62	19	43.8
23	Lavender ¹	U. S. P. X	1 oz.	0.40	9	1	4.7
30	Lemon	U. S. P. X	1 oz.	0.60	6	..	1.8
4	Peppermint ¹	U. S. P. X	2 oz.	0.75	52	11	42.1
24	Pine Needles ¹	U. S. P. X	1 oz.	0.22	5	5	6.8
17	Rose	U. S. P. VIII	10 M	1.00	12	7	7.7
25	Rose Germanium	.. ..	1 oz.	0.75	6	4	1.1
20	Santal—East Indian	U. S. P. X	1 oz.	0.85	12	5	8.6

Miscellaneous.

31	Agar	U. S. P. X	1/4 lb.	0.68	1	5	1.0
26	Coal Tar, Crude (Pix Carbonis)	N. F. V	1 lb.	0.25	1	9	1.3
1	Liquid Petrolatum ¹	U. S. P. X	1 pt.	0.50	57	87	82.2
Total				\$17.13	549	434	

NOTE: These 33 leading items have an average cost of \$0.52.

¹ These items appeared as leading ingredients in the prescriptions studied in each of the four states represented in the "U. S. P.-N. F. Ingredient Survey." See text following Table XLII.

² This item comes within the scope of the Federal Narcotic Law. An official order blank and a monthly report is absolutely necessary.

ANALYSIS OF LEADING MANUFACTURERS' SPECIALTIES, CLASSIFIED INTO GROUPS
ACCORDING TO THEIR THERAPEUTIC USE AND ACTION.

The policy of the Department of Commerce of not publishing brand names precludes the inclusion of a similar list of the 253 manufacturers' specialties found to be leading ingredients. However, in the following table these specialties have been classified into 26 groups according to therapeutic use and action. The number of different specialty items in each group is shown, as is the total number of times that the specialties in each group were prescribed. The forms of the specialties in each group are shown in parentheses after the description of the therapeutic use and action. In a few cases certain specialty items had dual and even triple uses and were placed in each of the groups concerned. For this reason, uses are shown for 258 rather than 253 items, with a corresponding increase in the number of times that the leading items were used.

It is hoped that this summary of the leading specialties will be of value to manufacturers, pharmacists, physicians and others who may be interested. Any manufacturer is at liberty to communicate with the Bureau of Foreign and Domestic Commerce in Washington, D. C., to obtain information concerning the appearance of his products in the 20,000 prescriptions studied in the Survey. If any clerical work is required to obtain the information desired, the manufacturer may defray that cost and the information will be supplied if the request is a reasonable one.

In the first prescription department report from the Survey, a similar summary was made of leading manufacturers' specialties occurring in 15,063 prescriptions filled in 13 commercial type drug stores. All but one of the leading specialties in that first list were found among the leading specialties in the present study of 20,000 prescriptions. However, in the first report only those ingredients which occurred 25 times or more were considered leading ingredients, while in the present report all ingredients occurring at least five times are classed as leading ingredients.

Of the 253 leading specialties, 52 (20.6 per cent) appeared at least 10 times per 10,000 prescriptions in *each* of the four states represented in the "U. S. P.-N. F. Ingredient Survey," thus showing a popular demand from coast to coast.

TABLE XLI.—DISTRIBUTION OF 253 LEADING SPECIALTIES INTO GROUPS ACCORDING TO THERAPEUTIC ACTION AND USE.

Group.	Therapeutic Action and Use.	No. of Different Specialty Items.	Total No. of Times Prescribed.
A.	Expectorants, sedative expectorants, vehicles for cough mixtures, and other preparations for various diseases of the respiratory tract. (Ampuls 1; liquids 20; powders or crystals 2; tablets 2.).....	25	819
B.	Digestants and gastric correctives; enzymic liquids, also colitis disturbance powder and tablets. (Liquids 7; powders or crystals 7; tablets 3; capsules 1.).....	18	997
C.	Hypnotics and sedatives. (Liquids 8; powders or crystals 7; tablets 8; capsules 2.).....	25	1549
D.	Analgesics, antipyretics and antirheumatics. (Liquids 1; powders or crystals 7; tablets 4; capsules 1.).....	13	576
E.	General tonics, stimulating diet and auxiliary foods, malt and Blaud preparations, cod liver oil concentrates, vitamin fortified products, preparations prescribed in the treatment of secondary anemia, general "run-down" conditions malnutrition and convalescence, lack of appetite and vigor. (Liquids 27; powders or crystals 2; tablets 4.)..	33	721
F.	Laxatives in various forms, including fluidextract cascara sagrada, aromatic type, effervescent salts, liquid petrolatum and emulsion of agar agar and petrolatum. (Effervescent salts 1; liquids 10; tablets 4; pills, granules, etc. 2; ointments and jellies 1.).....	18	723
G.	Antiseptics, germicides, prophylactis of the silver protein type in colloidal form, also other silver solutions and products used in conjunctivitis, urethral irrigations, gynecologic practice, infections of the genito-urinary tract and of the eye, ear, nose and throat. (Liquids 1; powders or crystals 5.)	6	450
H.	Glandular or organotherapeutic products. (Ampuls 1; powders or crystals 1; tablets 10.).....	12	132
I.	Staphylococcal infections. (Tablets 1.).....	1	16
J.	Emollients, antiphlogistics and ointments. (Liquids 1; ointments and jellies 15.).....	16	751
K.	Diuretics, genito-urinary antiseptics and preparations for both internal and external use for venereal diseases; also preparations indicated in cystitis, pyelitis and various gynecological diseases; and for application to wounds, etc. (Liquids 3; powders or crystals 3; tablets 11; capsules 1.)..	18	347

L.	Gynecological antispasmodics and utero-ovarian and menstrual sedatives and anodynes; derangements of the female functional organs. (Liquids 5.)	5	58
M.	Hemostatics, astringents, vasomotor stimulants, vasoconstrictors. (Liquids 1.)	1	48
N.	Quinine suspended in palatable vehicles. (Liquids 2.)	2	74
O.	Suppositories. (Suppositories 1.)	1	17
P.	Inhalants. (Liquids 6.)	6	96
Q.	Cardiac tonics and heart stimulants, and preparations for renal and dropsical conditions, angina pectoris and asthma. (Liquids 4; powders 2; tablets 6.)	12	420
R.	Pneumococcidicides. (Powders or crystals 1.)	1	44
S.	Rheumatic effervescent salt of sodium salicylate and other drugs and preparations to relieve rheumatism. (Effervescent salts 3; liquids 1; powders or crystals 4; tablets 2; capsules 3.)	13	248
T.	Oral antiseptics and mouth washes. (Liquids 2.)	2	18
U.	Antiseptic solutions and germicides (organic mercury compounds) and other antiseptics including dusting powder, etc. (Liquids 4; powders or crystals 4; tablets 1; capsules 1.)	10	332
V.	Local anesthetics. (Powders or crystals 4.)	4	143
W.	Alimentary canal and intestinal astringents and sedatives and preparations for diarrhea, cholera morbus, cholera infantum, dysentery, nausea, seasickness, etc. (Liquids 4; powders or crystals 3.)	7	106
X.	Organic iodine preparations—plain and in combinations—indicated in the treatment of arthritis, neuritis, goitre, syphilis, septic infections and similar conditions, also for inflammation in bone, joint and muscle and other iodine therapy preparations. (Liquids 2; powders or crystals 1; tablets 3; capsules 1.)	7	75
Y.	Contraceptives. (Ointments and Jellies 1.)	1	10
Z.	Roentgenographic visualizations. (Tablets 1.)	1	16

APPEARANCE OF NARCOTICS AMONG THE LEADING INGREDIENTS.

It would probably be considered a glaring omission in a report of this character if no separate reference was made to the extent of use and inventory investment required of narcotics, inasmuch as about 10 per cent of all prescriptions filled are narcotics, according to this Survey. As shown in the first prescription department report from the Survey, 7822 narcotic prescriptions were filled by 13 commercial type drug stores in a year, out of a total of 72,828 prescriptions, exclusive of liquor prescriptions.

Of the 164 leading chemicals listed, 11 are narcotics and would cost approximately \$19 for a representative order. Codeine sulphate ranked third of all ingredients used, and third among the chemicals. If codeine alkaloid, sulphate and phosphate were grouped together, codeine and its salts would then rank second of all ingredients, only water having more frequent demand. In addition to the 11 narcotic chemicals, there were 8 narcotics among the leading galenicals, 5 narcotics among the leading specialties, and 1 narcotic in the list of botanicals, oils, etc. The 8 narcotic galenicals would cost \$13.58; the 5 narcotic specialties, \$6.52; and the single narcotic in the list of botanicals, oils, etc., \$0.73. Thus the total cost of narcotics in the four lists would be approximately \$40, a small sum and yet sufficient for the opening order. The inventory value of narcotics in one of the most typical of the survey stores, however, was only \$24.47, divided as follows: chemicals, \$10.18; galenicals, \$12.98; specialties, \$0.70; and botanicals, \$0.61.

The number of narcotics in the galenical list will, no doubt, seem rather small. This is due to the fact that different sizes and strengths of a particular narcotic, such as tablets of codeine

sulphate, are not distinguished as separate items. The galenical list also contains four exempt narcotic preparations which do not require a Harrison Act narcotic form, although a record of their sales must be kept.

METHODS FOR PRACTICAL USE OF THE LISTS OF LEADING INGREDIENTS.

Practical information of the type contained in the lists of leading ingredients should serve a very useful purpose to retail and wholesale pharmacists. Association secretaries, wholesale druggists, professors in colleges of pharmacy and others are frequently questioned concerning the correct cost of a prescription department stock and the proper items to order. The pharmacist should always bear in mind that the prescribing habits of the physicians whose prescriptions he fills govern the movement of the various prescription-department items. He will probably save several hundred dollars if when he opens a drug store, he orders in limited quantities, and only those items which appear on these and other lists of leading ingredients, with the exception of items of an emergency nature which must be kept on hand in anticipation of a rare and urgent call. Then later, as prescriptions are received and the prescribing habits of the contributing physicians determined, he can order carefully to conform with the proved demand. In this way, the pharmacist will go far in his effort to prevent the accumulation of "dead" items on his prescription department shelves. With the exception of emergency items, the ingredients comprising the opening order will be items which are shown to be in fairly frequent demand, and which thus have less chance of becoming "shelf-warmers."

The authors feel that if it were possible to bring this report, particularly this part dealing with prescription ingredients, to the attention of the approximately 1800 pharmacists who open new drug stores each year in the United States, a saving of from \$100 to \$500 per store could be accomplished. At a conservative estimate, the total saving would be at least \$250,000, a figure several times larger than the total cost of the National Drug Store Survey. (The number of new drug stores opened during the last 41 months up to and including May 1933, was 6064, with 1932 exceeding 1931 and 1930. This data covers new stores only and does not include change in ownership of a going business. These figures are believed to be conservative, as other sources furnish a figure 10 to 25 per cent higher, with the statement that this is considerably less than the average for the past five years, due to the depression.)

While approximately 1800 new drug stores have been opened annually during the last few years, it is sad to relate that 1387 failed during 1932, according to figures compiled by R. G. Dun & Co. This figure does not include stores which simply closed their doors voluntarily. Therefore, let those alert pharmacists who do not wish to be numbered among the failures bear in mind that they are living in a day requiring business efficiency and that solvency may depend upon quickness of assets. As often said, goods well-bought are half sold. Concentration of purchases and a studious endeavor to simplify lines and items will simplify buying and allow more time to concentrate on selling. The merchant pharmacist knows the cigars and cigarettes and the flavors of ice cream most in demand and purchases them accordingly. However, often it is the case that an alert buyer in the commercial departments has failed to solve the problem of "dead" stock in his prescription department. One good remedy for this situation is scientific buying, ordering in quantities proportionate to demand through his wholesaler, who performs a real economic function in stabilizing stocks, safeguarding credit, maintaining slow-moving prescription department items, and other services which allow the retailer to operate more economically.

These basic ingredient lists should be of use to professors in colleges of pharmacy in instructing and examining students on the subject of the more commonly used ingredients. The report should enable the student to appreciate the economic angles involved. The student and embryo drug store proprietor should compare the lists of leading ingredients with the actual inventory analysis of Store 6-B (Table XXXIV), an excellently managed, fairly modern drug store, and note the large number of items, 35.4 per cent of the 1451 items stocked, which had no movement or purchase during the Survey year.

Until the pharmacist, particularly the proprietor of the usual commercial type drug store, has ascertained the amount of prescription business which he may reasonably expect to do, he should beware of the "deal." Very often even at the start, he is tempted to buy from 5 to 25 pounds of this or that chemical, or an assortment of galenicals (elixirs, tinctures, syrups, etc.)

in order to obtain some free goods or an extra discount. It is much better to pay a little more for these items, buying them in small quantities from the wholesaler, and to invest the difference in merchandise of assured movement, in this way realizing actual rather than paper profits. Unsold chemicals and pharmaceuticals cannot be used to discount bills. Furthermore, buying them in small quantities until demand is proved assures a "clean" prescription department inventory. If the pharmacist wishes to convince himself of the soundness of this advice, let him examine carefully the list of leading galenicals. Out of 234 galenicals which occurred five times or more in 10,000 prescriptions filled by six commercial type drug stores, only 35 occurred as many as 50 times each. A number of these 35 items, such as tincture of belladonna, digitalis, nux vomica and Fowler's solution, are seldom prescribed other than in comparatively small quantities. Also, other of these items, such as camphor and peppermint waters, simple elixir, simple syrup, syrup of sarsaparilla compound and syrup of wild cherry, are usually manufactured in the store as needed. In addition to the monetary considerations, there is the important question of deterioration and potency to be considered in connection with, to mention a few, tincture of digitalis, fluidextract of ergot, pancreatin and other unstable glandular and organo-therapeutic products.

Of course, there are some galenicals, such as elixir of iron, quinine and strychnine, elixir of digestive compound, fluidextract of cascara sagrada aromatic, spirits of nitrous ether and milk of magnesia, upon which the pharmacist will probably begin to experience a profitable over-the-counter demand, after the store has been established a short time. Even with these additional sales possibilities, the pharmacist should wait for a proved demand in a quantity large enough to warrant their purchase in large quantities, and should carefully consider for each item its stability and the possibility of manufacturing it more economically in his own establishment.

In addition to the practical and academic uses of the lists of leading ingredients, just outlined, it is expected that as in the instance of the shorter list contained in the first report, the present lists will prove of value to dealers in botanical drugs, essential oils and other raw materials used in pharmacy and the drug trade, and to manufacturers of chemicals, pharmaceuticals and trade-named specialties. It has been suggested that manufacturers of pharmaceuticals could put the list to practical use as did the chemical manufacturers in the case of the list published in the first report. Certain chemical manufacturers used that list in making up and advertising special deals containing assortments of only those ingredients shown to be in fairly frequent demand. Manufacturers of proprietaries will no doubt be interested particularly in the analysis of the 253 leading manufacturers' specialty items.

Manufacturers of drug fixtures could put the list to actual use in entertaining the design and manufacture of fixtures to meet actual requirements, rather than requiring the pharmacist to follow the present practice of adjusting prescription stocks to fit the shelves of prescription fixture units which have not undergone any marked change during the past 20 or 30 years.

Federal Government agencies, such as the Bureau of Food and Drug Administration of the Department of Agriculture, the United States Public Health Service, and the Surgeon General's Offices of the Army and Navy, might find the lists of leading ingredients and other material in the report to be of practical value to them.

COMPARISON WITH OTHER LISTS OF LEADING INGREDIENTS—FACTS FROM THE "U. S. P.-N. F. PRESCRIPTION INGREDIENT STUDY."

As announced in the first report on the prescription phase of the National Drug Store Survey, the list of ingredients occurring in the 15,063 prescriptions studied in connection with that report, and the list obtained from the 20,000 prescriptions studied in connection with this present report were placed at the disposal of Dr. E. N. Gathercoal, Chairman, National Formulary Revision Committee, to be used as part of the material forming the basis of "The Prescription Ingredient Survey," also known as the "U. S. P.-N. F. Prescription Survey." This survey was conducted by Dr. Gathercoal under the auspices of the boards of trustees of the United States Pharmacopœia, the National Formulary and the AMERICAN PHARMACEUTICAL ASSOCIATION. The Survey has been based upon prescriptions carefully selected from professional and commercial type pharmacies located in New York, California and Maryland, as well as the approximately 35,000 prescriptions from Missouri mentioned above.

The primary purpose of the U. S. P.-N. F. Prescription Survey is to furnish information

to the U. S. P. and N. F. Revision Committees concerning the extent of use of various medicines prescribed by physicians. Thus its purpose differs somewhat from the primary purpose of the National Drug Store Survey, which is attempting to throw light on the economic loss due to the excessive cost of handling innumerable slow-moving prescription items, and to present certain facts to aid in prescription department stock simplification in an endeavor to increase efficiency of operation and net profits. Nevertheless, some of the facts from the Missouri section of the U. S. P.-N. F. Prescription Survey contain both commercial and scientific interest and are here-with briefly summarized. Incidentally, the number of prescriptions contained in this summary slightly exceed the number used in the two reports from the National Drug Store Survey. Also a few inconsistencies may appear due to the fact that the committee of the U. S. P.-N. F. Prescription Survey definitely decided to follow the plan used in the Charters Report and included trade-marked brand names of definite chemical substances and galenical preparations as an indent under the chemical or pharmacopoeial name of the substance, and counted the occurrences under the brand name in those recorded for the chemical.

The following table shows that 342 out of the 1778 different items occurred over 10 times each. Of these, 175 items (51 per cent) were U. S. P. X, 34 items (10 per cent) were N. F. V, and 86 items (25 per cent) were manufacturers' specialties. Thus only 25 per cent of the items of frequent use were specialties, while official and unofficial items (many of the latter being of a semi-official character) accounted for 75 per cent of these fast-moving items.

Official and unofficial items represented 65.30 per cent of the 1778 different items and 83.80 per cent of the total number of occurrences of ingredients. Specialty items accounted for 34.70 per cent of the 1778 items, but only 16.20 per cent of the total number of times the ingredients were used. The important factor in profit possibilities is not the number of different items called for, but the number of times the items are used. The actual use of U. S. P. X items was greater than that of any of the other three types of items. There were 175 U. S. P. X items which occurred over 10 times each, these 175 items being used an average of 85 times each per 10,000 prescriptions. N. F. V was represented with 34 items occurring over 10 times each, with an average occurrence of 40 times each, per 10,000 prescriptions. There were 47 unofficial items occurring over 10 times each, and they were prescribed an average of 31 times each per 10,000 prescriptions. Specialty items in this fast-movement group numbered 86, with an average occurrence of 32 times each, per 10,000 prescriptions. Thus it is seen that specialty items of frequent occurrence were not prescribed anywhere near as frequently as official U. S. P. and N. F. items. On the other hand, as a glance at the table will show, specialties are responsible for more items of infrequent occurrence, calls or sales than U. S. P. and N. F. items combined.

It might be remarked that the Missouri section of the U. S. P.-N. F. Prescription Survey stood particularly high in the percentage of U. S. P. and N. F. items used.

An examination of the super list of ingredients occurring 10 times or more per 10,000 prescriptions in the "Prescription Ingredient Survey," drawn from a total of nearly 122,000 prescriptions (including the 35,000 from the National Drug Store Survey in Missouri), revealed that out of 701 different ingredients occurring 10 times or more each, 170 were chemicals, 276 were galenicals, 227 were specialties and 28 were botanicals, oils, etc. The 122,000 prescriptions were drawn from the four states of California, Maryland, Missouri and New York. Only 256, or 36.5 per cent of the 701 items occurring 10 times or more each, occurred in all four states represented. Of these outstanding 256 items, 88 (34.4 per cent) were chemicals, 103 (40.2 per cent) were galenicals, 52 (20.3 per cent) were specialties and 13 (5.1 per cent) were botanicals, oils, etc. Those of the 256 outstanding items which are published in the preceding lists of leading ingredients are indicated by a foot-note mark (foot-note one). Of course, the lists printed herein only show chemicals, galenicals and botanicals, oils, etc., specialties having been omitted for reasons previously given.

The number of ingredients occurring 10 times or more each in 10,000 prescriptions in the different states were as follows: California, 340; Maryland, 311; Missouri (professional pharmacies), 308; Missouri (commercial type pharmacies), 348; and New York, 366. A composite list of these leading items for the four states contained a total of 701 different items. Some idea of the wide difference between the leading ingredients of one state as compared with those in other states may be gained by reference to the following table. It will be noted that each state group had from 90 to 182 ingredients which did not occur ten times or more in some other states

TABLE XLII.—DATA FROM THE MISSOURI SECTION OF THE PRESCRIPTION INGREDIENT SURVEY.¹

Type of Ingredient.	Number of Different Ingredients.	Per Cent of Total.	Total Occurrences.	Per Cent of Total.
U. S. P. X Items	439	24.69	54,305	67.31
N. F. V Items	224	12.60	6,025	7.45
Unofficial Items	498	28.01	7,298	9.04
Specialty Items	617	34.70	13,046	16.20
Total	1778	100.00	80,674	100.00

Type of Ingredient.	Occurrences per 10,000 Prescriptions.	Number of Different Ingredients.	Total Occurrences per 10,000 Prescriptions.
U. S. P. X Items	Under 1	107	50.57
	1 to 10	157	564.46
	Over 10	175	14,829.06
	Total	439	15,444.09
N. F. V Items	Under 1	105	50.29
	1 to 10	85	295.09
	Over 10	34	1,713.44
	Total	224	2,058.82
Unofficial Items	Under 1	277	113.80
	1 to 10	174	513.77
	Over 10	47	1,447.60
	Total	498	2,075.17
Specialty Items	Under 1	279	124.04
	1 to 10	252	868.93
	Over 10	86	2,716.56
	Total	617	3,701.53
All Items	Under 1	768	338.70
	1 to 10	668	2,242.25
	Over 10	342	20,361.28
	Total	1778	22,942.23

NOTES: 1. The average number of ingredients per prescription is 2.29.

2. The 439 U. S. P. items are 70.2 per cent of the 621 items monographed in U. S. P. X.

3. The 224 N. F. items are 30 per cent of the 758 items monographed in N. F. V.

¹ Results from tabulation of ingredients in 35,163 prescriptions from professional and commercial type pharmacies.

studied. It is of special interest to note that 90 of the leading ingredients from the Missouri commercial type store did not appear in the Missouri professional pharmacy list, while 117 of the Missouri professional pharmacy ingredients did not appear in the Missouri commercial type store list. The leading ingredients in the Missouri commercial type stores appeared in other state lists more than any other group, while New York led in ingredients which failed to appear in the lists of other states.

TABLE XLIII.—EXTENT TO WHICH THE LEADING INGREDIENTS OF ONE STATE ARE FOUND TO BE LEADING INGREDIENTS IN OTHER STATES.¹

State.	Number of Leading Ingredients.	Number of Leading Ingredients				Not Occurring in Missouri
		California.	Maryland.	Commercial.	Professional.	
California	340	...	99	167	156	108
Maryland	311	147	...	161	149	113
Missouri (Commercial)	348	163	113	...	90	132
Missouri (Professional)	308	182	129	117	...	157
New York	366	152	107	178	171	...

¹ A "leading ingredient" is one which occurred 10 times or more per 10,000 prescriptions in any one state.

WHOLESALE STUDY SHOWS PRESCRIPTION ITEMS YIELD NET PROFIT.

The study covering the wholesale phase of the National Drug Store Survey is about ready for publication by the Bureau of Foreign and Domestic Commerce. Preliminary figures from this wholesale study show that prescription items handled by the service wholesaler yield a net profit in spite of heavy investment and storage charges resulting from the inherent slow turnover of prescription items. This finding is quite interesting in view of the fact that some other departments with comparatively high turnover do not yield sufficient gross margin to cover their operating expense, and thus show a net loss.

ABSTRACTS OF SCIENTIFIC SECTION PAPERS.

"Licorice Fern and Wild Licorice as Substitutes for Licorice," by Louis Fischer and E. V. Lynn.—A study reported by one of the authors three years ago indicated the possibility of using the rhizomes of licorice fern, *Polypodium vulgare* L. var. *occidentale* Hook., in place of the official licorice. In the meantime, attention was called also to the common occurrence of *Glycyrrhiza lepidota* (Nutt.) Pursh. Both plants have now been examined carefully. No glycyrrhizin could be found in the rhizomes of either plant, in spite of previous impressions to the contrary and of the fact that the results of quantitative methods appear to indicate its presence. From the leaves of licorice fern were extracted benzoic acid, sucrose, a phytosterol, an indifferent substance (carbon 80.65 and hydrogen 12.80 per cent) melting at 74° C., and probably salicylic acid, besides the usual starch, proteins, etc. From the rhizomes of wild licorice were identified sucrose and benzoic acid. The characteristic taste of the rhizomes, from licorice fern is due partly to sucrose, which was identified, and partly to a bitter substance in very small quantity. They contain also a glucoside which was given the name, "polydin," but no alkaloids.

By a preliminary extraction with chloroform, galenicals can be made from the rhizomes which are satisfactory substitutes for those made from licorice. The taste is strikingly similar. Experiments in cultivation have indicated that commercial production to economic advantage is very possible.

"The Value of Senecio in Medicine," by Edgar A. Kelly and E. V. Lynn.—In a preliminary examination reported two years ago, the presence of alkaloids in *Senecio aureus* was noted. Since then we have submitted the official material to very careful study and have come to the conclusion that, if alkaloids are contained, the amount cannot be over 0.0007 per cent. No evidence could be obtained for the presence of glucosides and none for any toxicity to rats or rabbits, even with doses up to 170 times that given in the formulary as average. The starch of senecio is practically, if not entirely, inulin, quantitatively about 10 per cent. Numerous experiments on isolated uterine strips and on normal uterine movements *in vivo* demonstrated the absence of any effect on tone, rate or amplitude.

The authors are now, therefore, inevitably forced to the conclusion that senecio presents no useful properties as medicine. The published recommendations are for uterine stimulation, or at least effect on the uterus, and the authors can find no evidence whatsoever for any such action; they suggest that the material be eliminated from our materia medica. As long as certain classes prescribe it, deletion from the Formulary may not be advisable, but it would seem logical to urge abandonment of any administration.