

## THE PROFESSIONAL PHARMACY.\*

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*(Continued from page 782.)*

## CHAPTER V. PRESCRIPTION INVENTORY PROBLEMS AND INGREDIENT ANALYSIS.

The information in this chapter, and the list of leading ingredients at the end of the report, should be of particular value to the pharmacist who is opening a new drug store, as an aid in ordering his basic or opening prescription department inventory, and to wholesalers in preparing a suggested list for the opening order. With approximately 2500 pharmacy students graduating and 1800 new drug stores opening every year, the occasion for an opening order happens not infrequently. However, most pharmacists will recognize the inventory problem as one which has been very trying to them and it is hoped that some of the suggestions made in this chapter will assist them in solving this problem.

Later in this chapter it is shown that a maximum of 1274 different ingredients is required to fill 10,000 prescriptions. However, only 358, or 28 per cent of these 1274 ingredients will be called for as many as 10 times each in filling the 10,000 prescriptions. As the average drug store does not fill many more than 10,000 prescriptions in three years, it will be seen that 500 prescription department items distributed judiciously among chemicals, galenicals and manufacturers' specialties should prove to be an adequate opening order. Of course, these 500 items should be made up of those items which are shown in the list of leading ingredients to have been at least in fairly good demand. In a given community there may be several items not on the list, which because of unusual circumstances are in quite frequent demand. However, the wholesaler could bring such items to the attention of the druggist. The list of leading ingredients does not include manufacturers' specialties because the policy of the Bureau of Foreign and Domestic Commerce does not permit the publishing of trade-name items. However, the United States Pharmacopoeia and National Formulary Revision Committees have published lists of leading ingredients based on their extensive prescription studies, which should be an excellent medium for selecting an assortment of manufacturers' specialties most frequently prescribed. These lists could also be used to check the list of chemicals, drugs and galenicals published in this report.

Of course, the new drug store does not ordinarily have a very large prescription business at the start, but has to build up this business over a period of years. Later in this chapter, a tabulation showing the number of prescriptions filled the first year in business by a number of drug stores is shown, and this business is compared with their present prescription business. If the new drug store averages one prescription a day for the first year, or 365 prescriptions for the year, approximately 300 different ingredients will be needed. Table 33 shows the number of different ingredients required for the first 500 prescriptions, and for each succeeding block of 500 prescriptions.

The average number of prescription department items in each of the 11 commercial type stores studied in the survey (from preliminary figures which may be reduced 5 or 10 per cent after editing to combine similar items) was 1474, of which a great number were not called for at all during the year of the survey. The average store would have to fill considerably more than 10,000 prescriptions a year if each of 1474 different items was to be used at least once in the year. In 8 commercial type drug stores studied in this survey, an average of 608 different ingredients was required to fill an average of 1883 prescriptions per store. It will be seen that more than half of the 1474 ingredients stocked were not called for even a single time in filling nearly 2000 prescriptions.

Among other disadvantages of a prescription department inventory which is cluttered with many inactive items is the expense involved. Any operating improvement which cuts down expense is particularly important during this time of depression, especially in view of the increasing number of failures in the industry. One reliable report states that: "The increase in the number of failures among wholesalers and retailers (in the drug industry) has been continuous

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\* See Table of Contents page 671, July issue of the JOURNAL.—This installment covers Chapters V and VI, which see.

since 1930, with the total for 1932 rising to 1387, the highest recorded in the last five years, and comparing with 1171 in 1931." The report just quoted is based on figures compiled by R. G. Dun & Company.

OPENING BUSINESS AND EXTENT OF GROWTH OF THE DRUG STORE'S PRESCRIPTION DEPARTMENT.

The first part of the following table shows the opening and present business in the prescription departments of 10 of the commercial type drug stores studied in connection with the National Drug Store Survey in St. Louis, Mo. These 10 stores had been in business an average of about 9 years in 1931 when the statistics were gathered, and in all but one case were still managed by the original proprietor. The 10 stores averaged 8.6 prescriptions each per day in the first year, although this average is distorted somewhat by the fact that refills are included for five stores. In five cases no record had been kept of the number of refills handled the first year, but generally the refill business of a store is not of great importance during its first year. For the year ending April 30, 1931, the 10 stores averaged 11.9 prescriptions each per day, including refills, an average increase of 3.3 prescriptions each, daily. Eight of the 10 stores individually had an increased prescription business. After a drug store has been established for a number of years, the refill business generally becomes of considerable importance. The average gain of the 10 stores is almost entirely accounted for by the refill business. If the refills were omitted from consideration in the year ending April 30, 1931, the five stores which did not keep a record of refills during their opening year would average a loss in prescription compounding, as compared with the first year.

For the sake of comparison, a similar study was made in 13 drug stores located in two Eastern cities. These 13 stores had been in business for an average of about 15 years each when this study was made in 1932 and 1933. These stores averaged 7 prescriptions each a day during their first year of operation, and average 12.4 prescriptions each daily at the present time, an increase of 5.4 prescriptions each per day. For only 4 of the 13 stores are refills included. If refills were added to the prescriptions shown for the other 9 stores, the average daily prescription activity would probably be a noticeably higher figure, and some of the 6 stores which show a decrease in the number of prescriptions filled would probably show an increased prescription practice.

It is interesting to note that those stores which had the smallest opening prescription service tended to have an increased business, while the opposite was true for those stores which started with a good prescription practice the first year. However, one store which filled an average of 9.9 prescriptions daily its first year (1921), quadrupled the number of its prescriptions, and another store, which averaged 10.3 prescriptions daily in 1916 when it opened, nearly tripled the number of its prescriptions. On the other hand, one store filled an average of less than one prescription a day in 1929 when it opened, and in 1932 showed only a slight increase, at that time averaging only 1.4 prescriptions daily.

The facts shown in the accompanying table point out strongly the necessity of using judgment and care in selecting the opening stock for the prescription department of a drug store. The average new store will fill only from 2500 to 3000 prescriptions its first year, and thus only a fraction of the prescription department items which could be stocked will actually be prescribed the first year. The wise plan is to purchase in the opening order only those items which are known to have frequent occurrence (and, of course, items of an emergency nature), and then to obtain other items as they are actually prescribed. Care should also be used when placing the opening order of containers, corks and other accessories and supplies, to avoid overstocking.

These actual examples show clearly how some stores build up their prescription business, in some cases after starting with a good volume, while in other stores this phase of the business is evidently neglected, or at least not promoted to the fullest extent. Some proprietors of stores who started with a nice prescription volume must have taken this as a matter of course, doing nothing to build it further or even to keep up the opening volume. Of course, certain factors, such as location of the store, limit the possibilities of increasing the volume of prescriptions; some stores would never be able to increase the volume to 40 prescriptions a day, for example. But in most cases it is possible to substantially increase the prescription business over the volume of the opening year, and with proper management the profit possibilities of the prescription department are greatly enhanced as the volume becomes greater. Certainly, for example, the

proprietor of the store which after three years has only increased its prescription business to an average of 1.4 prescriptions a day has not made any noticeable effort to promote the professional phase of the drug store.

The questionnaire professional stores in 1932 had been in business for an average of 17 years. During the opening year, these stores averaged 23.5 prescriptions each per day, while in 1932 they averaged 73 prescriptions each daily. Nine of these professional stores started quite inauspiciously, averaging only from 2 to 10 prescriptions each per day during the first year. However, five stores started with a large volume, averaging from 31 to 150 prescriptions each per day in the opening year. Some of those stores which started with such a small volume are

TABLE XXVII.—COMPARISON OF OPENING AND PRESENT PRESCRIPTION BUSINESS IN 10 COMMERCIAL TYPE DRUG STORES IN ST. LOUIS, MO.

Date Store Opened.	First Year in Business.		Year Ending April 30, 1931.		Daily Net Change.
	No. of Prescriptions.	Daily Average.	No. of Prescriptions Including Refills.	Daily Average.	
1924	792	2.2	2394	6.5	+4.3
1925	1267 <sup>1</sup>	3.5 <sup>1</sup>	4046	11.1	+7.6
1926	1496 <sup>1</sup>	4.0 <sup>1</sup>	2269	6.2	+2.2
1929	2189	6.0	5150	14.1	+8.1
1906	2522 <sup>1</sup>	6.9 <sup>1</sup>	4561	12.5	+5.6
1911	2571	7.0	4126	11.3	+4.3
1924	2731	7.5	2314	6.3	-1.2
1924	5266 <sup>1</sup>	14.4 <sup>1</sup>	7197	19.7	+5.3
1924	6237	17.0	3675	10.0	-7.0
1926	6499 <sup>1</sup>	17.8 <sup>1</sup>	7883	21.6	+3.8
Average	3157	8.6	4362	11.9	+3.3

<sup>1</sup> Includes refills.

COMPARISON OF OPENING BUSINESS AND PRESENT PRESCRIPTION BUSINESS IN DRUG STORES IN TWO EASTERN CITIES.

Date Store Opened.	First Year in Business.		Most Recent Year. <sup>1</sup>		Daily Net Change.
	No. of Prescriptions.	Daily Average.	No. of Prescriptions.	Daily Average.	
1929	306	0.8	521	1.4	+ 0.6
1872	1161	3.2	2,526	7.0	+ 3.8
1928	1200	3.3	3,500	9.6	+ 6.3
1925	1828	5.0	8,769	24.0	+19.0
1889 <sup>2</sup>	1852	5.1	6,066	16.6	+11.5
1920	2127	5.8	1,705	4.7	- 1.1
1926	2500	6.8	1,625	4.5	- 2.3
1923	2835	7.8	1,954	5.4	- 2.4
1917	2948	8.1	723	2.0	- 6.1
1921 <sup>2</sup>	3600	9.9	14,858	40.7	+30.8
1916 <sup>2</sup>	3756	10.3	9,862	27.0	+16.7
1925	4053	11.1	2,494	6.8	- 4.3
1928 <sup>2</sup>	5064	13.9	4,099	11.2	- 2.7
Average	2556	7.0	4,516	12.4	+ 5.4

<sup>1</sup> In some cases the calendar year 1932 was used and in other cases the year from April 1932 to April 1933 was used. <sup>2</sup> Refills are included in the prescriptions shown for these stores.

NOTE: Another store studied had opened on June 1, 1932, and thus could only report its prescription business for the first 10 months, during which time it averaged only 1.3 prescriptions per day.

good examples of how a prescription business can be built up from almost nothing until the store has such a large volume that it changes from a commercial type store to a professional pharmacy.

PRESCRIPTION INGREDIENT REQUIREMENTS AND OCCURRENCE BY TYPE OF INGREDIENT IN  
PROFESSIONAL AND COMMERCIAL TYPE DRUG STORES.

An analysis was made of 10,000 prescriptions filled by professional pharmacies A and B and 10,000 prescriptions filled in commercial type drug stores to determine the number of different ingredients required and the number of times these different ingredients were used in filling these prescriptions.

It was found that a total of 1186 different items were prescribed in the 10,000 prescriptions from the professional pharmacies, while it would be necessary to carry 1274 different items in stock to fill the 10,000 prescriptions from the commercial type drug stores. The 1186 different ingredients of the professional store prescriptions were actually used 20,077 times, or an average of about 2 ingredients per prescription. This compares with an average of over 2.5 ingredients per prescription in the 10,000 prescriptions filled by commercial type stores, the 1274 different items required in filling these prescriptions being used a total of 25,196 times.

In both cases, chemical ingredients amounted to less than one-fifth of the total number of different ingredients, but were called for in the prescriptions about as often as galenicals and manufacturers' specialties combined. The chemical ingredients were much more active than specialties or galenicals, showing that chemicals have the least and specialties the most chance of becoming "shelf-warmers." For example, in the 20,000 prescriptions from both types of stores, the 280 different chemicals were called for an average of 80.8 times each, while the 700 galenicals were prescribed an average of only 18.7 times each, and the 745 specialties only 12.8 times each.

Of the 1186 different items which would have to be stocked to fill the 10,000 professional

TABLE XXVIII.—NUMBER OF DIFFERENT INGREDIENTS, BY TYPE OF INGREDIENT, REQUIRED IN  
FILLING PRESCRIPTIONS IN PROFESSIONAL AND COMMERCIAL TYPE DRUG STORES, AND  
THE NUMBER OF TIMES EACH OF THE DIFFERENT TYPES OF INGREDIENTS OCCURRED.

10,000 Professional Store Prescriptions.					
Type of Ingredient.	Number of Different Ingredients.	Per Cent of Total.	Number of Times Ingredients Occurred.	Per Cent of Total.	Average Number of Times Each Ingredient Occurred.
Chemicals	217	18.3	9,628	47.9	44.4
Galenicals	436	36.7	5,455	27.2	12.6
Specialties	533	45.0	4,994	24.9	9.4
Total	1186	100.0	20,077	100.0	17.0
10,000 Commercial Type Drug Store Prescriptions.					
Type of Ingredient.	Number of Different Ingredients.	Per Cent of Total.	Number of Times Ingredients Occurred.	Per Cent of Total.	Average Number of Times Each Ingredient Occurred.
Chemicals	235	18.4	12,993	51.6	55.3
Galenicals	554	43.5	7,653	30.4	13.8
Specialties	485	38.1	4,550	18.0	9.4
Total	1274	100.0	25,196	100.0	19.8
Total: 20,000 Prescriptions.					
Type of Ingredient.	Number of Different Ingredients.	Per Cent of Total.	Number of Times Ingredients Occurred.	Per Cent of Total.	Average Number of Times Each Ingredient Occurred.
Chemicals	280	16.2	22,621	50.0	80.8
Galenicals	700	40.6	13,108	28.9	18.7
Specialties	745	43.2	9,544	21.1	12.8
Total	1725	100.0	45,273	100.0	26.2

store prescriptions, 533 or 45 per cent, would be manufacturers' specialties. Only 38.1 per cent of the 1274 different items called for in the 10,000 prescriptions from the commercial type drug stores were specialties, however. Nevertheless, manufacturers' specialties were called for only 24.9 per cent of the time in the professional store prescriptions and only 18 per cent of the time in the prescriptions filled by commercial type drug stores.

It should be remembered that the professional store prescriptions were obtained from but two pharmacies, while the 10,000 commercial type store prescriptions were obtained from six commercial type pharmacies, including a chain store unit. Thus a larger number of physicians wrote the 10,000 commercial type store prescriptions than wrote the 10,000 prescriptions filled by the professional drug stores. This explains the fact that a larger number of different items were called for in the 10,000 prescriptions from the commercial type drug stores.

If the 10,000 prescriptions from professional pharmacies and the 10,000 from commercial type pharmacies are combined, the 20,000 prescriptions would require a total of 1725 different ingredients. After filling the 10,000 prescriptions from the professional pharmacies, which required 1186 different ingredients, only 539 additional different ingredients would be required to fill the 10,000 commercial type store prescriptions. Only 63 additional chemicals would have to be stocked, but 264 galenicals and 212 specialties in addition to those called for in the 10,000 professional store prescriptions would be required.

TABLE XXIX.—FREQUENCY OF OCCURRENCE OF INGREDIENTS IN PROFESSIONAL AND COMMERCIAL TYPE DRUG STORES.

Occurrence of Ingredients.	10,000 Prescriptions from Professional Pharmacies.			
	Number of Ingredients.	Per Cent of Total.	Number of Occurrences.	Per Cent of Total.
Once	375	31.62	375	1.87
Twice	150	12.65	300	1.49
3 times	87	7.34	261	1.30
4 times	55	4.64	220	1.09
5-9 times	196	16.52	1,335	6.65
10-25 times	161	13.57	2,525	12.58
26-50 times	66	5.56	2,494	12.42
51-100 times	57	4.81	4,037	20.11
101-200 times	25	2.11	3,355	16.71
201-500 times	13	1.10	4,031	20.08
Over 500 times	1	0.08	1,144	5.70
Total	1186	100.00	20,077	100.00
Occurrence of Ingredients.	10,000 Prescriptions from Commercial Type Stores.			
	Number of Ingredients.	Per Cent of Total.	Number of Occurrences.	Per Cent of Total.
Once	407	31.95	407	1.62
Twice	171	13.42	342	1.36
3 times	103	8.08	309	1.23
4 times	69	5.42	276	1.10
5-9 times	166	13.03	1,089	4.32
10-25 times	177	13.89	2,808	11.14
26-50 times	72	5.65	2,619	10.39
51-100 times	53	4.16	3,629	14.40
101-200 times	35	2.75	5,059	20.08
201-500 times	15	1.18	4,515	17.92
Over 500 times	6	0.47	4,143	16.44
Total	1274	100.00	25,196	100.00

FREQUENCY OF OCCURRENCE OF PRESCRIPTION INGREDIENTS.

In the table below, the 1274 different ingredients occurring in 10,000 prescriptions from commercial type drug stores and the 1186 different ingredients prescribed in 10,000 prescriptions

filled by professional pharmacies are classified according to the number of times each was prescribed in 10,000 prescriptions. In both groups of prescriptions, more than half of the different ingredients prescribed were used very infrequently, being called for less than five times each. These infrequently used ingredients were called for a total of only 2490 times in 20,000 prescriptions. On the other hand, those ingredients which were prescribed five times or more each were called for a total of 42,783 times in the 20,000 prescriptions. Thus, when a physician wrote an item on his prescription blank, in over 94 per cent of the cases that item was one of the minority group of items occurring more than five times.

Of course, those items which individually occurred a large number of times were of outstanding importance. For example, in the 10,000 prescriptions from the commercial type stores there were 56 items which were each prescribed at least 100 times. These 56 items represented only 4.4 per cent of the 1274 different items prescribed. Yet these 56 leading ingredients were prescribed a total of 13,717 times, or in 54.4 per cent of the 25,196 occurrences of ingredients. A similar situation existed in the case of the ingredients which had the greatest demand in the professional store prescriptions.

It is interesting to note the consistency between the two blocks of prescriptions as regards the number of ingredients in each frequency group, and the standing of each frequency group in the total number of occurrences. In both the commercial type and professional store prescriptions, for example, approximately 32 per cent of the different ingredients were prescribed just one time each, and in both cases these "shelf-warmers" represented less than 2 per cent of the total number of occurrences of ingredients.

Thus it is shown that only a comparatively small number of prescription items out of the many usually stocked are important from a movement standpoint. For example, in the professional store prescriptions, only 519 out of the 1186 different ingredients prescribed were called for as many as five times or more. If these 519 ingredients only had been stocked, they would have yet been sufficient for 94 out of every 100 ingredients prescribed. Or, in only 6 cases out of 100 would an item not in stock have been prescribed. Yet the items of rare occurrence ran the number of ingredients required in filling the 10,000 professional store prescriptions up to a total of 1186.

#### NUMBER OF INGREDIENTS REQUIRED PER PRESCRIPTION.

Table XXX shows the number of ingredients used per prescription in two professional drug stores. In both stores slightly less than half of all the prescriptions studied consisted of only one ingredient. Only about 28 per cent of the narcotic prescriptions, in both stores, contained just a single ingredient. Thus it will be seen that over half of the prescriptions in both stores contained more than one ingredient, and a considerable number contained six, seven or eight ingredients. As a total for both stores, nonnarcotic prescriptions contained an average of two ingredients, while narcotics averaged 2.7 ingredients. The average number of ingredients per prescription was higher in professional Store A than in Store B for both types of prescriptions.

It is somewhat surprising to note that the average number of ingredients per prescription was considerably lower in these professional pharmacies than in the 13 usual commercial type drug stores, reported in the first prescription department report. The 13 usual type drug stores had an average of 2.5 ingredients per prescription, the average being 2.4 for nonnarcotic and 3.2 for narcotic prescriptions. This difference is probably brought about by the much larger variety of manufacturers' trade-name specialties, biologicals, alergics, etc., carried by professional pharmacies. The professional drug stores carry a wider variety of prescription ingredients than do the commercial type stores, having on hand many items which are called for rarely. Obviously, simple, as well as difficult, prescriptions are filled by the professional stores. This fact suggests that professional stores doing a large business might allocate all single-ingredient and simple prescriptions to their younger and less experienced personnel. Naturally, such prescription clerks would be expected to fill more prescriptions of this type, in a given period, than if they were filling more difficult prescriptions.

Despite statements frequently made to the contrary, the average number of ingredients contained in a prescription has not decreased, or at least, not in the professional store herein studied.

TABLE XXX.—NUMBER OF INGREDIENTS PER PRESCRIPTION BY TYPE OF PRESCRIPTION, FOR TWO PROFESSIONAL DRUG STORES IN 1930-1931.

Number of Ingredients.	Nonnarcotic.				Narcotic.				Nonnarcotic and Narcotic.			
	Store A.		Store B.		Store A.		Store B.		Store A.	Store B.		
	Number of Prescriptions.	Per Cent.	Number of Prescriptions.	Per Cent.	Number of Prescriptions.	Per Cent.	Number of Prescriptions.	Per Cent.	Number of Prescriptions.	Per Cent.		
1	1841	45.0	1496	49.9	299	27.7	142	28.4	2140	41.4	1638	46.8
2	810	19.8	736	24.6	153	14.2	170	34.0	963	18.6	906	25.9
3	747	18.3	522	17.4	299	27.7	110	22.0	1046	20.2	632	18.1
4	458	11.2	193	6.4	137	12.7	43	8.6	595	11.5	236	6.7
5	182	4.4	46	1.5	126	11.7	30	6.0	308	6.0	76	2.2
6	43	1.0	6	0.2	42	3.9	3	0.6	85	1.7	9	0.3
7	8	0.2	..	...	19	1.8	2	0.4	27	0.5	2	0.0+
8	3	0.1	1	0.0	3	0.3	...	...	6	0.1	1	0.0+
Total	4092	100.0	3000	100.0	1078	100.0	500	100.0	5170	100.0	3500	100.0
Type of Prescription.	Store A.		Store B.		Store A.		Store B.		Total Both Stores.		Average per Prescription.	
Nonnarcotic	Number of Ingredients.		Average per Prescription.		Number of Ingredients.		Average per Prescription.		Number of Ingredients.		Average per Prescription.	
Narcotic	3,089		2.9		1166		2.3		4,255		2.7	
Total	11,871		2.3		6746		1.9		18,617		2.1	

In order to ascertain whether or not there has been any change in the average number of ingredients per prescription in the past 20 years, 1000 prescriptions filled in 1910 and 1000 filled in 1920 in professional Store A were examined, and the results are shown in the table below. It will be seen that there is little change in the average number of ingredients per prescription for all prescriptions studied, being 2.2 ingredients in 1910 and 2.3 in 1920 and 1930. However, when nonnarcotic and narcotic prescriptions are considered separately, the average number of ingredients per prescription for each type was a little higher in 1930 than in 1920.

TABLE XXXI.—NUMBER OF INGREDIENTS PER PRESCRIPTION BY TYPE OF PRESCRIPTION IN PROFESSIONAL STORE A IN 1910 AND 1920.

Number of Ingredients.	1910.				1920.			
	All Prescriptions.		Nonnarcotic.		Narcotic.		All Prescriptions.	
	Number of Prescriptions.	Per Cent.	Number of Prescriptions.	Per Cent.	Number of Prescriptions.	Per Cent.	Number of Prescriptions.	Per Cent.
1	397	39.7	403	47.4	34	22.7	437	43.7
2	242	24.2	152	17.9	29	19.3	181	18.1
3	204	20.4	135	15.9	28	18.7	163	16.3
4	110	11.0	101	11.9	24	16.0	125	12.5
5	27	2.7	42	4.9	23	15.3	65	6.5
6	14	1.4	11	1.3	5	3.3	16	1.6
7	4	0.4	3	0.4	2	1.3	5	0.5
8	1	0.1	...	...	...	...	..	...
9	..	...	...	...	4	2.7	4	0.4
10	1	0.1	1	0.1	1	0.7	2	0.2
11	..	...	2	0.2	...	...	2	0.2
Total	1000	100.0	850	100.0	150	100.0	1000	100.0
Type of Prescription.	1910.		Average per Prescription.		1920.		Average per Prescription.	
Nonnarcotic	Number of Ingredients.		Unknown		Number of Ingredients.		1845	
Narcotic	Unknown		Unknown		Unknown		477	
Total	2198		2.2		2322		2.3	

In 1910, 39.7 per cent of the prescriptions studied in Store A contained only one ingredient, as compared with 43.7 per cent in 1920 and 41.4 per cent in 1930, showing that there is little variation in this respect. The highest number of ingredients found in a single prescription in 1930 was 8, while in 1910 and 1920 as many as 10 or 11 ingredients were used in filling a single prescription in a few cases.

#### PRIVATE FORMULA PRESCRIPTIONS.

Of the 5474 prescriptions studied in professional Store A, 304 or 5.5 per cent were private formula prescriptions. These prescriptions were studied separately and the results of this study are presented in the table below. The private formula prescriptions are not included in most of the other tables in this report, and for this reason are given special treatment here. No private formula prescriptions were studied for professional Store B, inasmuch as this store filled very few prescriptions of this type.

The table shows that physicians practicing internal medicine and dermatologists wrote a large part of these private formula prescriptions, together writing about 75 per cent of the 304 prescriptions. Of the 38 doctors practicing internal medicine, 8 wrote private formula prescriptions. These 8 doctors averaged 16.9 private formula prescriptions each, this type of prescription representing 13.3 per cent of all their prescriptions studied. Private formula prescriptions occupied an even more important place in the business of the individual dermatologist, an average of 23 such prescriptions being written by each dermatologist who wrote this type of prescription. However, 60.5 per cent of the private formula prescriptions were written by two doctors. One, who practiced internal medicine, wrote 102 such prescriptions, while the other, a dermatologist, wrote 82 private formula prescriptions. The former ranked third among the doctors contributing the prescriptions studied in this store for 1930, while the latter was second.

It is interesting to note that of the 304 private formula prescriptions, only 17 were narcotic prescriptions. Of these 17 narcotic prescriptions, 6 were written by one doctor and 5 by another.

Although not shown in the table, Stores C and D both manufactured from physicians' private formulas. In Store C approximately 25 per cent and in Store D approximately 10 per cent of the total prescription business is of a private formula character, according to the estimates of the proprietors.

Sixty per cent of the 35 questionnaire stores do not fill many private formula prescriptions, but the other 40 per cent fill a large number of such prescriptions. Eighteen of the questionnaire stores prepare and submit formulas to physicians.

TABLE XXXII.—PRIVATE FORMULA PRESCRIPTIONS BY TYPES OF PRACTICE OF PHYSICIANS PRESCRIBING THEM.

Type of Practice.	Number of Doctors Writing Private Formula Prescriptions.		Number of Private Formula Prescriptions.	Per Cent of Total Private Formula Prescriptions.	By Doctors Writing Private Formula Prescriptions.		Average Number of Private Formula Prescriptions per Doctor.
	Total Number of Doctors.	Per Cent Private Formula Prescriptions.			Number of Other Prescriptions Written.	Per Cent Private Formula.	
Internal Medicine	8	38	135	44.41	879	13.3	16.9
Dermatology	4	7	92	30.26	367	20.0	23.0
Oculists	4	28	30	9.87	56	34.9	7.5
Ear, Nose and Throat	4	16	21	6.91	115	15.4	5.3
General Practice	6	58	14	4.60	254	5.2	2.3
Neurology	1	5	6	1.97	8	42.9	6.0
Surgery	1	21	2	0.66	36	5.3	2.0
Gynecology	1	14	1	0.33	13	7.1	1.0
Unknown	3	".."	3	0.99	1	75.0	1.0
Total	32		304	100.00	1729	15.0	9.5



NUMBER OF ADDITIONAL INGREDIENTS REQUIRED IN FILLING SUCCESSIVE BLOCKS OF 500  
PRESCRIPTIONS.

The study presented in Table XXXIII, below, is believed to give a clear picture of the difficulties confronting the pharmacist, as regards the prescription ingredients which must be stocked to meet the demand of his customers. Ten thousand prescriptions from two professional pharmacies and 10,000 from commercial type drug stores were the basis of this analysis. In each group, the prescriptions were considered in blocks of 500 prescriptions.

In the professional stores, for example, 328 different ingredients were required in filling the first 500 prescriptions. In the next 500 prescriptions, 121 new ingredients were required. Even after filling 5000 prescriptions, when the pharmacist might think he had built up a pretty widely assorted stock of prescription ingredients to care for his prescription demands, 34 new ingredients not called for previously are required. With each succeeding block of 500 prescriptions, the number of new ingredients required generally diminishes, but even in the 20th block, 10 new ingredients were prescribed.

TABLE XXXIII.—STUDY OF 10,000 COMMERCIAL TYPE DRUG STORE PRESCRIPTIONS AND 10,000  
PRESCRIPTIONS FROM TWO PROFESSIONAL PHARMACIES, TO DETERMINE THE NUMBER OF  
ADDITIONAL INGREDIENTS CALLED FOR IN EACH BLOCK OF 500 PRESCRIPTIONS.

Block.	Number of Different Ingredients Not Appearing in a Previous Block.		Block.	Number of Different Ingredients Not Appearing in a Previous Block.	
	Professional.	Commercial.		Professional.	Commercial.
1st	328	303	11th	34	35
2nd	121	173	12th	29	58
3rd	96	110	13th	19	50
4th	74	73	14th	26	21
5th	69	62	15th	29	19
6th	51	69	16th	41	20
7th	47	28	17th	32	15
8th	41	44	18th	15	15
9th	52	57	19th	20	47
10th	52	35	20th	10	40
			Total	1186	1274

It will be noted that the same general condition existed in the 10,000 commercial type store prescriptions, except that a larger number of different ingredients was required, 1274 for the 10,000 prescriptions as against 1186 for the 10,000 prescriptions from the professional pharmacies. The probable reason for this is that a larger number of doctors had a part in writing the prescriptions, than was true for the professional store prescriptions, which were all obtained from two professional pharmacies. Generally, a physician prescribes within a fairly limited range of ingredients, so the smaller the number of physicians contributing to the prescription business, the fewer different ingredients are required.

Blocks 19 and 20 in the commercial store prescriptions show a surprising number of new ingredients required, 47 and 40, respectively, so further explanation should be made. The 1000 prescriptions in these two blocks were taken from a chain store unit, and due to the wide variety of practice and large number of physicians contributing prescriptions filled by this chain store unit, located in the hub of the metropolitan district of St. Louis, this large number of ingredients appeared for the first time in the prescriptions analyzed. If the last two blocks were eliminated, due to the unusual factors just mentioned, the 9000 remaining commercial type store prescriptions would require only 34 more ingredients than the first 9000 professional store prescriptions.

There is more to this study than meets the eye, and it would be remiss not to state that of the 1274 ingredients that occurred in the 10,000 prescriptions filled in the commercial type stores, 17 per cent were chemicals, 46 per cent were galenicals and 37 per cent specialties. Chemicals were minor offenders and in the emergence of new ingredients shown in Table XXXIII, had a tendency to emerge in fewer numbers in each succeeding block than either galenicals or specialties. As a matter of fact it was not necessary to purchase any new chemicals at all in the 16th and 17th

(Continued on page 894.)

TABLE XXXIV.—SUMMARY OF THE PRESCRIPTION DEPARTMENT INVENTORY OF COMMERCIAL TYPE PHARMACY No. 6-B.

Type of Ingredient.	Number of Items without Movement Purchase.	Average Inventory Value.	Number of Items with Movement Purchase.	Average Inventory Value.	Number of Items with Purchase and No. Movement.	Average Inventory Value.	Number of Items with Purchase and No. Movement.	Average Inventory Value.	Number of Items with Movement and No. Purchase.	Average Inventory Value.	Total Number of Items.	Total Average Inventory Value.
1. Chemicals	78	\$ 20.76	46	\$ 15.02	114	\$ 48.53	10	\$ 1.27	24	\$ 4.32	272	\$ 89.90
2. A—Crude Botanical Drugs	30	7.74	12	3.45	12	4.08	1	0.29	4	0.68	59	16.24
B—Powdered Botanical Drugs	10	1.74	3	1.28	4	0.64	0	0	0	0	17	3.66
Total Botanical Drugs	40	9.48	15	4.73	16	4.72	1	0.29	4	0.68	76	19.90
3. Galenical and Pharm. Preparations												
A—Liquids												
(1) Ampuls	2	1.30	0	0	3	1.91	0	0	1	0.42	6	3.63
(2) Waters	6	0.95	2	1.08	6	2.20	0	0	0	0	14	4.23
(3) Solutions and Liquors	6	1.72	6	1.97	6	2.84	0	0	3	0.96	21	7.49
(4) Emulsions, Mixtures, Milks, etc.	2	0.22	0	0	3	2.71	0	0	0	0	5	2.93
(5) Syrups, Mucilages, Glycerites and Honeys	10	6.37	5	3.40	8	4.39	0	0	3	0.88	26	15.04
(6) Elixirs	13	9.98	10	8.59	9	13.16	0	0	6	5.10	38	36.83
(7) Spirits	0	0	2	1.64	3	1.55	1	0.09	0	0	6	3.28
(8) Liniments	0	0	0	0	2	1.73	0	0	1	0.23	3	1.96
(9) Tinctures	10	6.87	7	4.17	18	12.57	2	0.26	4	1.71	41	25.58
(10) Fluidextracts	35	22.80	10	6.56	8	9.11	1	0.35	1	0.27	55	39.09
(11) Wines	1	1.40	2	1.40	0	0	0	0	0	0	3	2.80
(12) Lotions	1	0.35	0	0	0	0	0	0	1	0.08	2	0.43
Total Liquids	86	51.96	44	28.81	66	52.17	4	0.70	20	9.65	220	143.29
B—Solids												
(1) Pills	20	6.87	8	4.02	2	0.77	1	0.17	3	0.24	34	12.07
(2) Tablets	63	20.90	25	8.72	40	19.44	4	0.37	8	1.00	140	50.43
(3) Tablets—Dispensing	3	1.51	2	0.15	3	0.86	0	0	2	0.06	10	2.58
(4) Tablets—Hypodermic	29	6.40	9	3.71	9	3.96	3	0.88	4	0.34	54	15.29
(5) Capsules	2	5.65	1	3.94	7	5.10	1	0.42	5	0.99	16	16.10
(6) Effervescent Salts	1	0.48	0	0	0	0	0	0	0	0	1	0.48
(7) Ointments	6	1.52	6	2.22	12	5.39	0	0	7	0.83	31	9.96
(8) Powders	2	1.50	4	4.23	0	0	0	0	0	0	6	5.73
(9) Powdered Extracts	8	3.56	5	4.82	3	0.62	0	0	1	0.05	17	9.05
(10) Solid Extracts, Concentrations, Resinoids, Euzymes	4	1.15	3	0.57	1	0.76	0	0	0	0	8	2.48
Total Solids	138	49.54	63	32.38	77	36.90	9	1.84	30	3.51	317	124.17

C—Glandular Products												
(1) Ampuls	1	0.55	0	0	1	2.29	0	0	0	0	0	2.84
(2) Powders	3	3.57	1	0.40	4	6.25	0	0	0	0	0	10.22
(3) Tablets	1	1.33	1	1.41	10	10.12	0	0	1	0.94	0	13.80
Total Glandular Products	5	5.45	2	1.81	15	18.66	0	0	1	0.94	0	26.86
D—Biologicals	12	24.33	1	0.90	9	8.53	0	0	0	0	0	33.76
Total Galenical and Pharmaceutical Preparations												
4. A—Oils, Expressed and Fixed	241	131.28	110	63.90	167	116.26	13	2.54	51	14.10	582	328.08
B—Oils, Volatile	3	0.58	1	0.20	7	3.56	0	0	4	0.79	15	5.13
Total Oils	14	3.90	6	2.85	7	2.18	2	0.45	1	0.04	30	9.42
5. Whiskey	17	4.48	7	3.05	14	5.74	2	0.45	5	0.83	45	14.55
6. Miscellaneous	0	0	0	0	4	52.04	0	0	0	0	4	52.04
7. Specialties	9	2.95	6	1.18	9	2.02	1	0.03	7	0.69	32	6.87
A—Liquids												
(1) Ampuls	6	8.17	0	0	1	0.89	0	0	2	1.38	9	10.44
(2) Inhalants	2	1.70	0	0	8	17.52	0	0	0	0	10	19.22
(3) Elixirs	6	7.02	5	3.87	4	4.72	1	0.30	0	0	16	15.91
(4) Other Liquids	46	40.66	29	39.60	66	71.17	0	0	14	5.79	155	157.22
Total Liquids	60	57.55	34	43.47	79	94.30	1	0.30	16	7.17	190	202.79
B—Solids												
(1) Pills	4	2.33	0	0	4	4.21	0	0	0	0	8	6.54
(2) Tablets	30	22.78	14	10.14	70	49.60	4	0.96	6	1.95	124	85.43
(3) Capsules	3	3.93	2	3.08	12	10.11	1	0.51	1	0.60	19	18.23
(4) Effervescent Salts	2	1.17	1	0.43	6	7.47	0	0	0	0	9	9.07
(5) Ointments	5	5.05	4	4.11	3	1.49	2	0.70	3	0.38	17	11.73
(6) Powdered and Other Dry Specialties	16	14.50	9	6.83	18	13.65	2	0.59	1	0.20	46	35.77
(7) Suppositories	2	1.50	0	0	0	0	0	0	0	0	2	1.50
Total Solids	62	51.26	30	24.59	113	86.53	9	2.76	11	3.13	225	168.27
Total Glandular Products	6	5.80	3	4.97	14	15.21	0	0	2	0.32	25	26.30
Total Specialties	128	114.61	67	73.03	206	196.04	10	3.06	29	10.62	440	397.36
Grand Total	513	\$283.56	251	\$160.91	530	\$425.35	37	\$7.64	120	\$31.24	1451	\$908.70

(Continued from page 891.)

blocks, and only twenty new chemicals at an average value of \$0.57 each for the 1500 prescriptions contained in the 18th, 19th and 20th blocks. On the other hand, it was necessary to purchase 62 new galenicals at an average cost of \$0.88 each, and 61 new specialties at an average cost in excess of \$1 each for the 2500 prescriptions contained in the last 5 blocks of prescriptions enumerated.

It might be mentioned that narcotic prescriptions were distributed proportionately through each group of 10,000 prescriptions, so that no block was distorted because of this type of prescription.

This study shows quite clearly the prescription department inventory problem of the pharmacist, whether he conducts a professional or commercial type drug store, as he must continually stock new ingredients, some of which may have little call. In addition to this, many items, particularly emergency items, must be stocked in anticipation of a rare call.

ACTUAL INVENTORY SUMMARY OF THE PRESCRIPTION DEPARTMENT OF A COMMERCIAL TYPE PHARMACY.

(See Table XXXIV on pages 892 and 893.)

At the time of the preparation of this manuscript the inventory analysis of one of the commercial type survey stores, No. 6-B, has been completed and a summary is inserted herewith in order to give the picture of the actual inventory problems of a drug store. Store 6-B is a well-managed, fairly modern store, and yet is faced, as are most druggists, with the problem of an over-crowded prescription department inventory containing many "dead" items. During the survey test year, from May 1, 1931 to May 1, 1932, Store 6-B filled a total of 4013 regular prescriptions with a sales volume of \$3552.75 and 848 liquor prescriptions with a sales volume of \$2332. The total sales volume of this prescription department was \$7042.04, for in addition to the sales from regular and liquor prescriptions, non-prescription sales of bulk remedies brought in \$284.44, sales of specialties amounted to \$810.85, and sales of biologicals aggregated \$62. Yet this prescription department would have shown a loss for the survey year had not the net profit on liquor overcome the loss realized on regular prescriptions.

As will be seen in the following table, there were 1451 different items in the prescription department inventory of Store 6-B. Yet it has been shown earlier in this chapter that only 1274 different ingredients were required in filling 10,000 prescriptions from commercial type drug stores, almost 2½ times as many prescriptions as Store 6-B filled in a year. No wonder, then, that there were 513 items (35.4 per cent of the 1451 items stocked) which showed no movement at all or purchase from the supply source during the survey year. The same quantities of these 513 items were on the shelves at the end of the survey year as when inventoried at the beginning of the Survey. These items had undoubtedly been ordered to meet the demand of a prescription in an earlier year, for which there was little or no later call.

This analysis certainly gives a vivid actual picture of the problem mentioned earlier in the chapter where methods of simplifying inventory is discussed. This pharmacist's shelves are cluttered with many "dead" items as the result of many prescriptions calling for little used ingredients. Furthermore, the fact that the regular prescription business of this store showed a loss portrays the seriousness of this situation from a monetary standpoint.

In addition to the 513 "dead" items mentioned above, this pharmacist ordered 37 new ingredients when there was no prescription requiring that he do so. These 37 ingredients had no call and joined the rest of the "shelf-warmers." Of the 513 items with no movement and purchase, 78 valued at \$20.76 were chemicals, 241 valued at \$131.28 were galenicals and 128 worth \$114.61 were specialties.

There is no need of writing elaborate text on this table as it is self-explanatory, and shows the results for the different types of ingredients quite in detail. It might be mentioned that there were 530 items which had both movement and purchase from the supply source. There were 371 other items which had movement, but which were not replenished during the Survey, and 120 of these items were discontinued. The total inventory, consisting of 1451 different items, was valued \$908.70, an amount considerably greater than the amount suggested for a store's opening order elsewhere in the report, probably due to the accumulation of many items of infrequent occurrence.

Biologicals are seldom prescribed, so it is particularly interesting to note the extent of their movement. It should be kept in mind that these results are just for one particular store.

Preliminary inventory tabulations for Store 3-B show a much larger movement of biologicals in that store than in Store 6-B.

The information presented in this table should be studied in conjunction with the earlier table in Chapter III showing the average cost of ingredients and prices of prescriptions in Store 6-B, and with the lists of leading ingredients printed in Chapter VII.

#### CHAPTER VI. SIMPLIFICATION OF THE PRESCRIPTION DEPARTMENT INVENTORY.

Because of the large number of different ingredients required in filling prescriptions, such a large proportion of which merely become "shelf-warmers," it is certainly to the interest of the pharmacist to take steps to keep the number of items at as low a figure as possible, whenever this can be done without a violation of professional prerogatives and duty.

The first step in most drug stores should be to get rid of the large number of items which have long been on the shelves without call. This "housecleaning" would not include items of an emergency character which are kept in anticipation of a rare call, but would be aimed at obsolete manufacturers' specialties, numerous fluidextracts and galenicals and similar items which have fallen into disuse but which most druggists seem never to discard, reinventorying them year after year. These "shelf-warmers" might profitably be destroyed, exchanged or contributed to a charitable institution. Druggists might well emulate the policy of a nationally known pharmacist who has created what he styles the "morgue." This is a chest or cupboard in which he places at intervals items which have not been prescribed for a year. A loose leaf alphabetical list is kept of these items, so that he can immediately place his hands on one of these obsolete items if he should receive a call for it. At the same time, the shelves in his prescription room present an orderly, tidy and not crowded appearance, facilitating the rapid filling of prescriptions and decreasing the chances of inaccuracy. The adoption of this method by druggists throughout the country is recommended, and it is believed that the improved appearance of prescription rooms will favorably impress physicians, with a resulting increase in the prescription business of those stores which clean out their shelves in this way.

While from the theoretical point of view it would be a good thing for the pharmacist to turn down prescriptions containing a rare item which will probably not be called for again and which is destined to become a "shelf-warmer," many pharmacists would say that from the practical point of view this cannot be done; that customers do not understand the business reasons of the pharmacist in turning down such a prescription and that such a policy would undoubtedly hurt the reputation of the store.

Three methods of handling this problem suggest themselves, where the size of the town and the number of drug stores permit. The first method is for the pharmacist to accept all prescriptions calling for an ingredient of rare occurrence, but to have an arrangement with the drug store doing the biggest prescription business in the town, preferably a professional pharmacy, to fill such prescriptions for them and allow a discount. Another method would be for a group of pharmacists to appoint one of their number to handle the type of prescription under discussion, filling the more staple and emergency items themselves. The third method would be for a group of pharmacists to employ their own pharmacist, naturally the most expert possible, and share the expense of a centrally located store. This store would not need to be in a ground floor room, so the expense could be kept at a low figure. Any of the three methods would eliminate the trouble and expense incident to the attempt to fill prescriptions calling for rarely used ingredients, at the same time avoiding any risk of losing professional prestige and reputation by refusing to accept such prescriptions.

However, if a pharmacist is unable to adopt one of the methods suggested above and yet feels that he must do something to prevent the accumulation of many "dead" items on his shelves, about the only two courses open to him are to refuse to fill certain prescriptions and to contact his leading physicians with a view to obtaining their coöperation in the matter. But in selecting the type of prescription to be turned down, the pharmacist will find the number extremely limited due to various reasons. He will naturally want to eliminate only those items which occur very infrequently and are not of an emergency nature. But often an ingredient occurring just once is prescribed with other ingredients which are comparatively fast movers. If the druggist turns down this prescription in order to avoid purchasing a quantity of the unusual ingredient for which

he has had no previous call, he will also have to turn down a chance to use the faster-moving ingredients. Yet, it is quite possible that a large part of the supply of the unusual ingredient, even if ordered in the smallest quantity, will lie unused on the shelves.

Only in the case where the unusual ingredient is called for in a single-ingredient prescription does the problem become relatively more simple. If the prescription calls for only a part of the quantity which must be ordered, the pharmacist may turn it down to avoid adding this additional item to his stock of prescription ingredients. But even in this case, the pharmacist must consider whether or not he is refusing a service to a regular customer which might cost more than the saving accruing from the refusal to make this investment. He must also consider the fact that this prescription might be refilled one or more times, which would make it profitable in the end.

After all, it is hard to judge in advance whether or not the new ingredient will be called for just a single time. It might, for example, turn out to be an ingredient which a particular doctor, who sent considerable business to the store, had recently found to be applicable in treating certain cases, and thus this new ingredient might later be prescribed quite frequently by this particular physician. The pharmacist will always be willing to go to extra effort and expense to take care of the unusual demands of regular customers, both physicians and patients.

A sample of 1950 prescriptions from commercial type Store No. 4 were studied to give an actual example of the possibilities of elimination of prescription department items. The 1950 prescriptions required 604 different ingredients, of which 244, or 40.6 per cent, occurred only one time. Eliminating those ingredients which were called for in combination with a faster moving ingredient, it was found that 134 of the 244 ingredients which were prescribed just once each, were not prescribed in combination with other ingredients. The investment required in purchasing the usual quantity of each of these 134 ingredients was found to total \$131.10. The table below gives a summary of the investigation of the 134 ingredients which occurred just one time each, and on single-ingredient prescriptions:

TABLE XXXV.

Type of Ingredient.	Number of Ingredients.	Per Cent of Total.	Total Investment Required.	Average Investment per Ingredient.
Chemicals	9	6.7	\$ 4.84	\$0.54
Galenicals	37	27.6	36.00	0.97
Specialties	88	65.7	90.26	1.03
Total	134	100.0	\$131.10	\$0.98

Thus it will be seen that a considerable investment is required in filling these 134 prescriptions which occurred just once among the 1700 prescriptions studied. While these 134 ingredients lend themselves best to any attempt to keep down the number of prescription department items, yet even with these ingredients there are many factors to be considered before refusing the prescription, as outlined above. Store 4 fills about 7900 prescriptions annually at an average price of \$1. Thus the average investment in these "shelf-warmers" almost equals the average retail prescription price. It is striking to note that 244 "dead" items were called for in prescriptions which amounted to only about one-quarter of a year's prescription business.

Thus, while there are undoubtedly instances where a prescription calling for an ingredient of rare occurrence may well be turned down, yet this will not greatly reduce the number of prescription items required in filling prescriptions. However, any effort to keep the number of prescription items at a low figure, if exerted on a systematic and thoughtful basis, should be of assistance in the pharmacist's attempt to increase the profit possibilities of the prescription department.

It would seem that the most practical way to approach this problem would be to go to the source and obtain the cooperation of the physicians who write the prescriptions. It is believed that physicians are interested in decreasing the cost of medical care, and should be glad to cooperate with the druggist if they are individually and collectively made aware of their tendency to write for so many ingredients that are rarely prescribed, when another ingredient of more popular use would serve the same purpose.

As seen in the case of Store 4, the bulk of these "shelf-warmers" were manufacturers' specialties, which the physician probably had recently heard of, thought he'd try, written a prescription for and then promptly forgotten. If the physician realized the expense involved, he would probably be glad to eliminate this wasteful practice to a great extent, calling for rare ingredients only when there was a real necessity that they be prescribed.

The pharmacists' associations could get in touch with physicians' associations in bringing this suggested reform to the attention of physicians collectively. However, the individual pharmacist can also take steps by contacting his leading physicians. Chapter IV showed that a major share of the total prescription business of most stores consists of prescriptions written by just a few physicians. In professional Store A, the leading 25 (out of 463) physicians wrote 56.4 per cent of the prescriptions studied, while in professional Store B, 25 (out of 259) physicians wrote 65.8 per cent of the prescriptions studied. The same situation was found to exist in the commercial type drug stores, as reported in the first prescription department report from this survey. Thus, the pharmacist should be able to accomplish a great deal in his effort to simplify the prescription department inventory, by maintaining closer contact and coöperation with his leading doctors. Through this contact, the pharmacist can also determine the physician's preferences and be ready to supply whatever he prescribes. This should be particularly helpful in the selection of the brands to be carried. Besides cutting down the call for "new" ingredients, the pharmacist would also be better informed as to the extent to which a "new" ingredient, if called for, would be used in the future. (See the latter part of this chapter, wherein is suggested a method by which the pharmacist may be kept informed of new manufacturers' specialties as they are put on the market.)

Pharmacists generally take inventory at considerable expense each year for tax purposes, and then file away the inventory list and forget about it. The inventory list could be put to practical use by checking it against the previous year's list to weed out "dead" items which have shown no movement during the year.

It has just been seen above that 65.7 per cent of the 134 prescription items occurring just once were manufacturers' specialties. The largest part of the many items on the pharmacists' prescription shelves are specialties, many of which are prescribed just once or a few times. The average number of times that each specialty ingredient is prescribed in 20,000 prescriptions, as reported in Table XXVIII is 12.8, while chemical ingredients were called for an average of 80.8 times each. In filling the 20,000 prescriptions, 745 different specialty ingredients were prescribed, but only 280 different chemical ingredients were called for. Manufacturers interested in the welfare of the pharmacist should mutually take cognizance of this condition, and while naturally continuing to market any new product possessing originality and being an actual contribution to the existing therapeutic agents, should endeavor to resist the temptation of duplicating the already too extensive number of medicinal products now available.

The questionnaire stores with their average inventory investment of \$9255 reported in all but four instances that they did not frequently receive prescriptions calling for items not stocked. All of these stores reported that the items not in stock were new manufacturers' specialties.

#### INTRODUCTION OF NEW MANUFACTURERS' SPECIALTIES.

Throughout this text reference has been made to the large number of specialties on the market and being placed on the market each year. The major portion of the pharmacist's inventory problem in the prescription department has been shown to be due to many specialties which are prescribed just once, or a very few times, in the course of a year. It is certainly of interest to know to what extent these new remedies are introduced each year. Therefore, a study was made of the recent remedies reported in the "Annual Recapitulation of Recent Remedies" in *The American Druggist*, October issues of 1928, 1929, 1930 and 1931. It is possible that there were some new specialties which were not included in the tabulations of *The American Druggist*, but at least the number shown is not an overstatement of the situation.

It was found that during the four years mentioned, 495 new remedies were introduced. The 495 new specialties were divided as follows among the different years: 1928, 103 new remedies; 1929, 126 remedies; 1930, 134 remedies; 1931, 122 remedies; and 10 new products which were put on the market during the period, but as to which the exact year is unknown.

In some cases a remedy was put out in more than one form, such as, for example, liquid and powder. If each form is considered as a different new remedy, there were 566 new remedies introduced during the four-year period. Throughout the remainder of this section, the number of new remedies will be considered as 566, each form of a new remedy being considered as an additional item.

It was only possible to determine the name of the manufacturer in 520 of the 566 cases. However, these 520 new remedies were introduced by a total of 158 different manufacturers. In 40 of the cases where the manufacturer was unknown, it was at least possible to determine the firms which marketed the products. These 40 new remedies were marketed by 27 different firms. In the other 6 cases it was not possible to determine either the manufacturer or the firm which marketed the product.

It was found that a small number of manufacturers was responsible for a large proportion of the new remedies introduced. Of the 158 known manufacturers, 22 introduced 7 or more new remedies each during the four-year period, 2 manufacturers introducing as many as 36 new products each. In all, these 22 manufacturers introduced 306 new products, or 54.1 per cent of the 566 new remedies put on the market. Of the 22 manufacturers which led in the introduction of new products, 6 were foreign firms and 16 were domestic corporations. Most of the 22 manufacturers are among the best-known pharmaceutical manufacturers.

The table below shows the form of the 566 new remedies. This is interesting in determining whether or not the liquid form is being replaced in part by other forms, such as tablets and capsules. The section in this report which shows the form of the 8670 professional store prescriptions filled in 1930 shows that 52.65 per cent of those prescriptions were liquids, whereas in 1910 and 1920 liquids represented about 64 per cent of the prescriptions studied. However, in approximately 24,000 prescriptions filled by commercial type drug stores in 1930, 61.3 per cent were liquids. Tablets showed a steady increase from 5.9 per cent in 1910 to 13.5 per cent in 1930 in the professional store prescriptions. It is interesting to note, therefore, that only 30.4 per cent of the recently introduced products were liquids, while 21 per cent were tablets. There was only 1 ampul prescription among the 8670 professional store prescriptions studied, and yet 71 of the new remedies were in ampul form. Only 5 per cent of the new specialties were capsules.

Of course, the introduction of new remedies does not necessarily mean that they will enjoy a large sale. Therefore, the fact that these 566 new remedies have a much smaller proportion of liquids and larger proportion of tablets does not necessarily indicate that the proportion of liquids in prescriptions will be greatly reduced. But it does give a definite picture of the trend as far as the introduction of new specialties is concerned. In line with this thought it is interesting to see the extent to which these new remedies are adopted by physicians. In approximately 35,000 prescriptions filled by professional and commercial type pharmacies in St. Louis, Mo., during the 12-month period from May 1, 1930 to May 1, 1931, only 22 (17.5 per cent) of the 126 new remedies marketed in 1929 appeared at all. Of the 134 new remedies introduced in 1930, only 17 (12.7 per cent) were prescribed in the 35,000 prescriptions. Of the 122 new specialties marketed in 1931, only 12 (9.8 per cent) appeared in the prescriptions studied. If the St. Louis situation can be said to be typical of the whole United States, we can then assume that on an average only 13.4 per cent of the new proprietaries being marketed are prescribed to any extent.

It should be mentioned, however, that new specialties are more likely to be found on the shelves of the professional pharmacy than in the commercial type drug store. Proprietors of three professional pharmacies in St. Louis were each asked to give a list of their leading specialties. Thus a list of 43 specialties was obtained, all of which were prominent in at least one professional store. The inventories of 11 commercial type stores were then examined and it was found that 24 of the 43 specialties did not appear in any of the 11 stores, while 8 specialties appeared in only 1 store each. Only 4 of the 43 specialties appeared in more than 4 of the 11 commercial type drug stores, and none of them appeared in all 11 stores. The manufacturer must, therefore, depend on the professional pharmacy to a large extent when marketing a new product. Nearly three-fourths of the 35,000 prescriptions examined to find the occurrence of the 566 new remedies were filled in commercial type drug stores. Had prescriptions from professional pharmacies only been searched, a more favorable showing for the 566 new remedies might have re-



sulted. However, the prescriptions examined did include several thousand prescriptions from professional stores.

In view of the above showing it might again be said that manufacturers who have the interests of the pharmacist at heart and who wish to reduce where possible the cost of medical care, have a real opportunity to be of practical assistance by refraining from introducing new specialties which merely duplicate the remedies already on the market and which are not an actual contribution to the existing therapeutic agents.

TABLE XXXVI.—FORM OF NEW MANUFACTURERS' SPECIALTIES INTRODUCED IN 1928, 1929, 1930 AND 1931.

Form of Remedy.	Number of New Remedies.	Per Cent of Total.
Liquids (Including Solutions)	172	30.4
Tablets	119	21.0
Powders	76	13.4
Ampuls	71	12.6
Creams, Jelly, Salve or Ointment	41	7.2
Pills, Pearls, etc.	33	5.8
Capsules	28	5.0
Unknown	26	4.6
Total	566	100.0

#### SPECIALTY CAPSULE PRESCRIPTIONS.

It is interesting to see what percentage of the capsule prescriptions studied were manufacturers' specialties. Out of a total of 1258 nonnarcotic capsule prescriptions filled in professional Stores A and B, 167 or 13.3 per cent were manufacturers' specialties. Both stores were quite close to this average percentage. In Store A, 12.2 per cent of the nonnarcotic capsule prescriptions were specialties, while this was true of 14.9 per cent of Store B's nonnarcotic capsule prescriptions. Store A filled 768 nonnarcotic capsule prescriptions and Store B only 490. This finding comes as a surprise, particularly in view of the showing in the preceding table to the effect that only 5 per cent of the new specialties introduced in the four years from 1928 through 1932 were capsules.

#### METHOD OF FILING INFORMATION ON SPECIALTIES.

The conduct of the prescription phase of the survey has brought to light a condition which the specialty manufacturer will probably appreciate being brought to his attention, and that is the scarcity of convenient information and reference to the numerous existing specialties. This inconvenience is not felt so much by the professional pharmacies which have a large enough turnover in the items to be familiar with them, but it is a decided problem to the majority of the 60,000 retail pharmacists who while only filling around 10 prescriptions a day each, nevertheless feel called upon to have at their finger tips for themselves and physician patrons detailed information regarding the name, price, form or forms, active ingredients and therapeutic action of the manufacturer's specialty.

It is true that some manufacturers announce the introduction of any new product in trade journals or their individual house organs, but with the multiplicity of tasks which confront the average pharmacist he does not always have time to scan and file this material. Furthermore, there is no uniformity in size of this literature, nor does he often receive a prescription calling for a specialty simultaneous with the receipt of its announcement in a house organ or a trade journal. It might be argued that upon the receipt of a prescription calling for a specialty with which he is not familiar, the pharmacist can run through his literature and see if he could not locate it. Obviously, this is not expedient. Or it might be suggested that he consult one of the trade directories with which he is furnished when he subscribes to a trade journal. Many reasons might be stated why this is often not productive of results. One such reason, and an important one from the manufacturers' viewpoint, is that even if he succeeded in locating the specialty in a trade journal, the information would give him only the price, the name of the product and the

name of the manufacturer, but would fail to give him any information regarding its form or forms, its composition and its therapeutic effect, and not infrequently the druggist is asked these very questions by a physician. He is thus placed in an unfavorable light in the eyes of the physician, or perhaps the physician writes a prescription for another ingredient which the pharmacist has readily available, in which case all the time and expense to which the manufacturer has gone in detailing the physician is lost.

Proprietors of drug stores interviewed during the conduct of the survey suggested that both manufacturers and pharmacists would mutually benefit, if all of the pharmaceutical specialty manufacturers would join in designing a uniform size card, approximately the size of a post-card or smaller, upon which would be printed the essential details regarding any new trade-named specialty which they contemplated introducing. The method for distributing this card to the pharmacist could be through several mediums, such as, for example, in an envelope under one cent postage or through one of the national retail druggist associations, such as the AMERICAN PHARMACEUTICAL ASSOCIATION or the National Association of Retail Druggists, or through the medium of the wholesaler. Numerous other methods will suggest themselves. The entertainment of the suggestion should include a consideration of a suitable case or box into which the cards could be filed. It is not believed that the expense of such an undertaking would be disproportionate to the benefit to be derived by all concerned, and it would seem to coordinate with the manufacturer's detailing programs.

This suggestion was first made by one of the authors of this report in an address before the American Pharmaceutical Manufacturers' Association at Greensboro, N. C., on May 17, 1932, shortly after the first report on the prescription phase of the National Drug Store Survey was published. It is gratifying to learn that one of the trade journals has endorsed the suggestion, and is going even further by making a practical application of the plan. Each month the *Druggists Circular* publishes full information concerning new manufacturers' specialties which have just been introduced. This information is published in convenient form, so that it can be clipped and pasted on 3" by 5" index cards, and placed in a file box for instant reference. The *Druggists Circular* reports a hearty response to the plan as indicated by letters from pharmacists located in all sections of the country.

Since the inauguration of this information system, the *Druggists Circular* has described 63 of the newer trade-marked pharmaceutical specialties, only 2 of which are found among the 253 leading specialties described in the ingredient analysis of 20,000 prescriptions, presented later in this report. The fact that such a large number of new specialties have been introduced in such a short time shows the need for such information. If the publishers of this information would go a step further and publish a list of from 200 to 300 new specialties introduced in the last several years, such as those mentioned in another section of this report, they can give their readers even greater service.

The pharmacist's references at present include such textbooks and books of standards as the United States Pharmacopœia, the National Formulary, New and Nonofficial Remedies and a dispensatory. The execution of the plan outlined above would fill the gap and complete the sources of information to which the pharmacist could refer when seeking information regarding a prescription ingredient.

#### SPECIFICATION OF GALENICALS OF PARTICULAR MANUFACTURE.

As seen in Table XXVIII, 436 different galenicals used in filling 10,000 prescriptions in professional drug stores were used a total of 5455 times. In only 327 out of the 5455 times that galenicals were called for, or about 1 out of each 17 times, was a particular manufacturer specified by the prescribing physician. Prescriptions filled by Store A had 171 such specifications, and Store B, 156.

Galenicals, as used in this report, may be defined as preparations such as elixirs, fluid-extracts, tablet triturates, certain organotherapeutics, concentrates, products in extract or other form, etc., which are of a competitive character, and which do not have distinctive trade names which would identify them as the exclusive product of a specific manufacturer.

The fact that there is so little specification of particular brands will be welcomed by the wholesaler and retailer who are interested in stock simplification and in keeping down to a minimum the investment in the prescription department inventory. On the other hand, it will not

be so cheerfully received by pharmaceutical manufacturers who are devoting considerable money and effort to have physicians specify their brand name when prescribing galenicals. One of the complaints most frequently voiced by pharmacists during the survey was the fact that brand specification of galenicals required them to carry from three to five brands of the same galenical such as Viosterol and Haliver Oil, detracting from the profit possibilities of the prescription department.

#### EXTENT OF MANUFACTURING IN THE PHARMACY.

Inquiry in the four professional pharmacies disclosed the fact that a considerable amount of manufacturing of galenicals and other preparations takes place in the professional pharmacy. Eight registered graduates are employed at Store A, and one of these has charge of the manufacturing, which requires about half his time as prescription clerk. This prescription clerk is paid the highest salary. Separate space is set aside for the manufacturing function. Inasmuch as all of the clerks are necessary, and no relief clerks are required, the proprietor estimates a saving of 20 per cent on preparations manufactured. Among the principal items manufactured in the store are Camphorated Tincture Opium, Elixir Iron Quinine and Strychnine, Spirit of Camphor, Compound Elixir Glycerophosphates, Syrup Ferrous Iron, Ointment of Rose Water, and all simple U. S. P. and N. F. preparations.

In Store B about the same situation exists. This store employs six registered graduates, one of whom does all of the manufacturing, which consumes about half of his time. The items manufactured are similar to those in Store A, and the estimated savings about the same as in Store A.

In Store C about 50 per cent of the galenicals and other such preparations are manufactured in the store. This work is assigned to a particular clerk, and requires from two to three hours of his time daily. The saving due to this store's manufacturing is estimated at 25 per cent. Among the leading preparations so manufactured in this store are Elixir of Terpin Hydrate, Elixir of Three Bromides, Compound Elixir of Glycerophosphates, Syrup of Hypophosphites, Syrup of Calcium Lactophosphate, Elixir of Ammonium Valerate, Syrup of Ferrous Iodide and Solution of Iron Peptonate and Managanese.

In Store D all galenicals are manufactured when practical, but if they require an assay, or if for some other such reason it is not practical to manufacture them, they are not manufactured in the store. This manufacturing is assigned to one clerk, and requires about 50 per cent of his time. The proprietor considers the time profitably spent, but has never estimated the savings. Among the leading preparations so manufactured in Store D are Antiseptic Solution, Tincture of Iodine, Lugol's Solution, Elixir Phenobarbital, Compound Syrup of Hypophosphites, Syrup Ferrous Iodide, Syrup of Tolu and Syrup of Wild Cherry.

All but two of the questionnaire stores manufactured galenicals and other preparations as much as possible, and this manufacturing was believed to be profitable in all but four of the cases.

(To be concluded in October issue of the JOURNAL)

#### ANOTHER TRI-STATE ASSOCIATION MEETING PLANNED.

The Pharmaceutical Associations of Arizona, New Mexico and West Texas held a joint meeting at El Paso in May of 1932 and had such a good time that they are planning to repeat the experience in 1935. Emissaries of El Paso came to the Carlsbad meeting of the New Mexico Association and extended an invitation, which was accepted, contingent upon similar acceptance by the Arizona and West Texas associations. Jack Robinson and L. Evans, Jr., both of Phoenix, Ariz., were present and expressed their belief that their state would be enthusiastic over the idea, and it is a foregone

conclusion that West Texas will get behind the movement. It is hoped not only to get the druggists of these states together, but also to secure attendance from other states in the great West, including Colorado, Kansas and Oklahoma.—*Rocky Mountain Druggist*.

*Chininum*.—The Bureau for Promoting the Use of Quinine has published a booklet on "Quinine in General Medical Practice." It is a supplement, in a way, to the volume published in 1930 and edited by Dr. Fritz Johannesson. Accompanying the volume is a smaller booklet on *Formulas* in which quinine is represented.