unit volume of the solution. The acid should be used, therefore, not in proportion to the amount of adrenalin chloride present, but in proportion to the total volume of the finished solution. One one-hundredth of one percent of absolute hydrochloric acid, is a suitable proportion.

Prescriptions including oxidizing agents, should not be dispensed. Iron salts, in particular, are to be avoided. Containers, distilled water, and all materials entering into the prescription, should be as nearly as possible free from iron.

Glassware containing much soluble alkali should not be used.

Contact with air should be minimized.

WHAT PERCENT OF THE PRESCRIPTIONS DISPENSED IN YOUR STORE CAN YOU CONSCIENTIOUSLY DECLARE TO BE DISPENSED WITH FRESH DRUGS AND CHEMICALS?

CORNELIUS OSSEWARD.

The frequency with which we see druggists and very often pharmacists also, lay particular stress, in their advertisements, that nothing but absolutely fresh drugs and chemicals are used in dispensing, is my excuse in asking the above question.

Whenever I see such an advertisement or announcement, it reminds me of another too frequently in print, n. l.

"PRESCRIPTIONS OUR SPECIALTY."

Our intentions may be good; we may think that we are dispensing fresh drugs; we may tell the dear public that we are specialists in dispensing, but will it stand investigation?

I am convinced that, under the present conditions, it is often impossible for the pharmacist to make such a statement and speak honestly, and that the firm using the largest sign "PRESCRIPTION SPECIALIST," or "PRESCRIPTIONS OUR SPECIALTY," do not possess a Pharmacopœia or National Formulary, and that the common utensils required in dispensing are conspicuous by their absence.

As there has been a great deal of that kind of advertising, which, after a little investigation could not stand the test, it is certainly refreshing to note the tendency for more honest and true statements.

Should we as pharmacists not be very careful how we advertise, how we write our copy? *Be sure* that you can *deliver* that which you promise.

In order to prove to you that we as pharmacists cannot at all times supply fresh drugs because we do not know about them, let me ask you,—

Are you giving your prescription stock as much attention as it requires?

Are you buying the right kind of stock in the right quantity? And are you taking proper care of this stock while in your possession?

Again, how long have these drugs and chemicals been on the jobbers' shelves? And how much care has the jobber given to the proper storing of his goods?

Is it not true that the average pharmacist, with the exception of the larger stores, buys mostly through the jobber, and it is therefore proper to ask whether the jobber looks after his stock, and stores it properly?

Again, the shipping of certain drugs, and especially the biologics, when subjected to great variation of temperature and climatic conditions, may soon become worthless.

Does the average pharmacist give due consideration to these important questions? If not, how can he say that the drugs he uses are absolutely fresh?

Again, does the average pharmacist understand or appreciate the value of proper storing? Does he know which drugs require the most care and attention to keep them in good condition?

At this time, and in this connection, it may be well to call attention to the fact that our Pharmacopœia does not give positive directions as to how some of the important drugs should be cared for and stored.

We may take Digitalis Leaves for example,—the only precaution given under Digitalis, is that the leaves should be collected from plants of second year's growth at the commencement of flowering.

It says nothing at all as to how these leaves should be stored. It does not state that the stems are worthless, and should be removed. No limit is given as to how long they may be kept on hand, notwithstanding the fact that it is well known that Digitalis leaves readily deteriorate, if not properly taken care of.

It is of interest to note how careful other Pharmacopœias are in this respect, when we read in them, under Digitalis leaves, the following cautions,—

"When Digitalis leaves are to be used, all stems must first be removed." "Digitalis leaves must not be kept longer than one year." "Digitalis should be freshly powdered whenever called for." "Digitalis leaves must be preserved by the use of unslaked lime."

Here then are explicit directions, as to how to keep it, how long to keep it, that the stems must not be used, and that the powder must be freshly powdered each time when called for. Following such precautions there is very little chance for having poor Digitalis leaves on hand.

Is it any wonder that Infusion Digitalis is practically worthless in a great many cases, not because it has not been properly made, but because the leaves were without any medicinal value?

And then we wonder why the physician prescribes some trade name article. Is it not because he failed to get results with the U. S. P. Infusion?

In our experience we have never failed to satisfy our physicians with getting results from Infusion Digitalis, prepared from leaves from which the stems were removed, and the preparation carefully preserved.

An investigation of commercial Digitalis preparations made by Weis, of Vienna, agrees with our experience, when he states that at present the best form in which to prescribe Digitalis is a freshly-made Infusion of physiologically-tested leaves.

He further states that of seventeen proprietary preparations examined, only three or four were of the strength stated, while others had only one-tenth the strength claimed for them.

If the crude material deteriorates so rapidly if not kept carefully, what about the preparations made from these drugs?

I have visited pharmacies where Fluid Extract and Tincture of Digitalis were stocked in gallon bottles, partly empty, the bottles covered with a thick layer of

dust, the dust proving without doubt that these bottles had not been disturbed for some time, and it would be interesting to find the activity of these preparations under such conditions.

Would it not be greatly to the interest of the patient if such preparations could not be purchased in such large amounts?

Here is where the pharmacist who manufactures his own galenicals has the great advantage, and can minimize such deterioration, by manufacturing only enough for his immediate wants, and renewing his stock frequently with a fresh supply.

So much for the simple galenical preparations.

What about the mixtures, the compound preparations, the ready-made prescriptions prepared for future use, instead of preparing them when needed? Can you always claim that these ready-made preparations are freshly prepared? Is it not true that you know nothing at all about when they were made, how long they have been in stock, and what changes of temperature they have been subjected to?

Is it reasonable to expect that these ready-made prescriptions distributed all over the country, very many of them consisting of several ingredients, are less liable to deterioration than the simple galenicals?

Is it not true that we know little regarding the influence of light and heat, and less of the chemical action in these organic compounds, and that for this reason only they should be prepared extemporaneously?

Have you ever examined your prescription file? Do you know the percent of these ready-made prescriptions prescribed? And do you know the percent of galenicals represented on your file?

I have taken the trouble to go over our files, and to get a fair average have taken 1000 prescriptions dispensed during June, and another 1000 dispensed during January.

I have here an itemized list of the proprietary preparations called for in these 2000 prescriptions, also the different U. S. P. and National Formulary products represented in these 2000 prescriptions. To read this list would take too much of our time. I will, therefore, give you the result in a condensed form, showing the number of times each class of preparations was called for in these 2000 prescriptions:

Vinegars	2
Acids	114
Elixirs	134
Powd. Ext.	66
Sol. Ext.	6
Fl. Ex.	124
Glycerites	6
Infusions	22
Liniments	8
Mucilages	6
Mixtures	16
Plasters	4
Solutions	46
Spirits	40
Syrups	218
Ointments	66
Tinctures	248
Total	1126

TRADE-MARKED OR PROPRIETARY PREPARATIONS.

Liquids	470
Tablets	
Powders	
Suppositories	212
Total	682

DETAILED STATEMENT OF PREPARATIONS DISPENSED IN ABOVE LIST.

Vinegars	2
Acid, Boric	30
" Carbolic	26
" Benzoic	2
" Hydrochlor. dil.	16
" Phosphor. dil.	6
" Nitrohydrochlor. dil.	2
" Picric	4
" Salicylic	18
" Tannic	10
Total Acids	114

Elix. Calisaya	22
" " and Iron	2
" Buchu, Juniper and Pot. Acet.	2
" Phosph. and Pot. Acet.	2
" Iron Quin. Strych.	58
" Heroin and Terpin Hyd.	48
Total Elixirs	134
P. Ext. Cascara Sag.	20
" " Nux Vom.	16
" " Aloes	10
" " Ignatia	5
" " Belladon.	10
Total P. E.	66
S. Ext. Belladon.	6
Fl. Ext. Aloes	2
" Belladon.	4
" Black Haw	2
" Black Cohosh	2
" Cascara Sag.	10
" Cascara Sag. Arom.	50
" Cramp Bark	2
" Can. Indica	6
" Digitalis	4
" Ergot	10
" Hydrastis	6
" Leptandra	2
" Lobelia	2
" Hyoscy.	4
" Nux Vomica	6
" Phytolacca	2
" Podophyllum	2
" Passion Flos. (not official)	2
" Pichi (not official)	4
Total Fl. Ext.	124
Glycerit. Tannin	6
Infusion Digitalis	22
Liniment Chloroform	4
" Stokes	4
Lotion Nigra	2
" Lead and Opium	20
Mucilage Acacia	6
Mixt. Licorice Co.	16
Tinct. Aloes	4
" Aconite	10
" Bellad. fol.	10
" Benzoin Co.	14
" Canth.	6
" Capsic. and Myrrh.	2
" Capsic.	6
" Cardamon. Co.	6
" Digitalis	16
" Gentian Co.	24
" Hyoscy.	12
" Gelsem.	2
" Iodi.	12
" Nux Vom.	44
" Opium	20
" Opium Camphor.	36
" Strophan.	4
Total Tinct.	248
Syrups Ipecac.	38
" Hydriodic Acid.	4
" Citric Acid.	2
" Ammon. Hypophos.	2
" Orange	30
" Hypophos.	2
" " Co.	10
" Licorice	20
" Raspberry	8
" Senna Co.	2
" Squill	16
" " Co.	16
" Sarsa. Co.	16
" Tolu	24
" Trifol. Co.	6
" Wild Cherry	22
Total Syr.	218
Plaster Canth.	4
Spirit Ammon. Arom.	10
" Nitre	20
" Frumenti	10
Total Spirits	40
Solutions Iron Mangan. Pepton.	8
" Alk. Antisep.	6
" Iron Ammon. Acet.	6
" Dobell's	8
" Arsenic Chlor.	4
" Loeffler's (not official)	2
" Ammon. Acet.	8
" Alumin. Acet.	4
Total Sol.	46
Ointment Acid Boric.	12
" Aq. Rose	6
" Diach.	4
" Sulphur	6
" Wilkinson's	8
" Zinc Oxid.	32
Total Ointments	66

TRADE-MARKED PRODUCTS AND READY-MADE PRESCRIPTIONS.

Angier's Emulsion.
Aletris Cordial
Alphozone.
Anisol Suppositories.
Alkalin Elixir, Merrell.
Bromidia.
Borolyptol.
Chiodrastis.
Calophen Tablets.
Capsolin.
Cu-Co-Ba Capsules.
Colchi-Sal Capsules.
Digitol.
Essence Caroid.
Gonosan Capsules.
Hydrastia Tonic.
Iodosyl Ointment.
Kepler's Malt.
Laxol.
Listerine.
Lysol.

Trommer's Malt.
Nephritis Tablets.
Pruno Codiene.
Syr. Hydr. Acid, G.
Sal Hepatica.
Toxinol.
Tolu Cherry Cordial.
Tyree's Powder.
Panzyme Tablets.
Palmo Dionin.
Panopeptone.
Pinoleum.
Palpebrin.
Sajodin.
Somnos.
Syrup Trifol. Co.
Salfene.
Tritipalm.
Tonoids.
Cascara Evac.
Waterbury's Cod Liver Oil Co.
Methylene Blue Co. Pills, Upj.
Pertussin.
Sanmetto.
Ung. Pinolium.
Hinkle's Pills, Warner.
Ambrozoin Tab.
Bronch. Capsules.
Wine Cod Liver Oil.
Cerose.
Wampole Cod Liver Oil.
Emuls. Cod Liver Oil, P. D. Co.
Dioxygen.
Diazyme.
Formamint Tablets.
Syrup Hypophos Co., Fel.
Hemaboloids Arsen.
Iodo Peptonoids.
Ingluvin.
Liq. Blaud's.
Mercury Vasogen.
Pepso Laxatone.
Papayan-Bell.
Regulin.
Ovoferrin.
Protonuclein.
Pepto Mangan.
Petrogen Liniment.
Solution Strontium Brom. Chap.
Tongaline.
Seltzer Aperient.
Carlsbad Salts.
Gastrogen Tablets.
Lactopeptin.
Neuronidia.
Uroform.
Pil Lapactic.
Elixir Peptenzyme.
Syr. Tolu Heroin Co., Warner.
Taka Diastase.
Vag. Suppos.
Benzoinol.
Phenolax.
Adrenalin Chlor. Sol.
Neurophosphates.
Bismuthol.
Kasagra.
Pil Hypophos. Co., Up.
Ess. Pepsin, Fairch.
Elix. Lactopep.

This then gives us two-thirds, or about sixty-seven percent, U. S. P. and N. F. products; and about one-third, or nearly 33 percent, ready-made preparations.

This is a fair average, and it would be interesting to compare this with several other prescription-files, in different parts of the U. S., to see if this average really does hold.

It shows, however, that in our locality at least, the pharmacist has control over two-thirds of the ingredients prescribed, and can assume responsibility, providing he does most of his own manufacturing, or buys in the proper quantity from reliable sources. But what about the other one-third? Can he take responsibility for that of which he knows nothing at all?

Can you conscientiously state that these goods are absolutely fresh, when you do not know how long they have been made?

Is there no remedy to overcome this unfair condition?

Should not the physician, and also the patient, know that the pharmacist is powerless, that he cannot assume responsibility for one-third of the products he is called upon to dispense under the present conditions?

The vigorous warfare which has been waged by the American Medical Association the last few years against various mixtures, has no doubt reduced the use of many of these ready-made mixtures. Has the pharmacist been as active, has he been conscientious at the prescription counter, has he done his full duty toward both the physician and the patient? Has he supported the splendid work carried on by the Medical Association?

If we, as pharmacists, are at all times careful in our buying, as to quality, and

also quantity; take proper care of our stock; manufacture our own galenicals in such quantity as needed, and dispense the prescriptions entrusted to our care faithfully, and honestly, I am sure that the use of these ready-made products will not be as popular in the future.

And it may be well to always remember that:—

The public will come to the pharmacist who can deliver *fresh goods.*
It is ready and eager to trust you if you will deliver *fresh goods.*
But don't take the prescription, and make out the bill,
Unless you are sure you'll be able to fill
That prescription, because it won't pay you until
You *deliver* Fresh Goods.

DISCUSSION.

Prof. Hynson said he was much interested in the subject of this paper and the point he wished to bring out was, that we must not condemn as ready-made, something that is really a definite chemical or a stable compound, even if it were proprietary. A great many of the compounds referred to are just like our elixirs, and there was no reason why they should be fresher than those.

Mr. Osseward replied that he had included some preparations that would keep for almost an indefinite time, and had only tabulated them for the main purposes of his paper.

Mr. Jones expressed himself as being very greatly interested in the subject as Mr. Osseward had treated it. He had had experience in the investigation of conditions of products in the average drug-store in many places. He had served as the Chairman of the Committee on Standards in his state (South Dakota), and had done work for its drug-department. He had called the attention of the Drug Commissioners to the fact that the condition throughout the state was not very favorable as to the freshness of drugs that were used in the compounding of medicines. The fault was not all with the retailer; he divided the responsibility with the jobbers, and, to some extent, with manufacturers. With the consent of the jobbers, an investigation had been made by the Drug Commissioners and it was found that a large percentage of the drugs, as they were sold to the retailer, were given little attention as to their freshness and purity. He thought that perhaps twenty-five percent of the drug trade in his state paid attention to the proper dispensing of drugs, and seventy-five percent paid very little attention to it. He thought this condition would hold good the country over. The condition to-day is much better throughout the country than three, four, or five years ago. He thought the druggists should pay special attention to the proper condition of their drugs and the proper storing of them, and that with the exercise of a little care a wonderful improvement could be made in their condition. He asked Mr. Osseward how long he would consider an Infusion of Digitalis fresh. Mr. Osseward replied that he was absolutely opposed to stock Infusion of Digitalis. It should be always freshly made.

Mr. Jones asked if the stems of the leaf should be removed from the standardized article before using? Mr. Osseward replied that in the standardized drug he had found but very few stems, and these he did not remove. Mr. Jones further inquired if Mr. Osseward would advocate the use of any other than standardized Digitalis. Mr. Osseward replied that he would not, especially for the infusion, for when the physician prescribed that preparation he looked for immediate results.

Mr. Hostmann inquired of Mr. Osseward as to his authority for his statements as to the deterioration of digitalis leaves. In his reply, Mr. Osseward said it was better to be on the safe side, and he would not use any digitalis that he knew to be over a year old. He had no definite authority for this, but he took this position from an excess of caution.

Mr. Hostmann said he had heard Prof. Hatcher, who had spent the best years of his life investigating the digitalis question, say that he had examined more than one sample of digitalis leaves that were quite old, some almost twenty years old, that had been carelessly kept in paper bags, and that these older drugs assayed better than samples that were only one

or two years old that had been properly cultivated, collected and stored. He practically stated that, as long as the digitalis leaves are all right when grown, they retain their strength for many years.

Prof. Hynson asked if Mr. Hostmann remembered what Dr. Hatcher had said about the permanency of preparations of digitalis? Mr. Hostmann replied that while it had been some time since the lecture he felt quite sure that the Professor stated that he had examined tinctures of digitalis more than ten years old, and that they showed no deterioration of strength,—that is they tested even better or at least as good when tested physiologically as those freshly prepared from selected leaves. The Professor's statement, with regard to the relative values of fluidextract and tincture had slipped his mind, but he was quite sure he had made the statement he quoted.

Mr. Hall agreed with Mr. Osseward as to the infusion of digitalis. If one would make a sample of the infusion and put it under observation, changes would be observed in it in twenty-four hours. It might retain its efficacy for a week or two, but it should be freshly prepared when prescribed. As to the deterioration of other preparations of the drug, he stated that some four to six years ago samples were collected for physiological testing by the University of Ann Arbor. He furnished for test a sample of fluidextract of digitalis which must have been nearly fifteen years old, and this sample showed the best results on test.

Mr. Becker stated that on the containers for Allen's digitalis leaves, was printed the statement of the results of their assay, and he asked how much regard should be paid to that statement.

Mr. Holzhauer said that this statement is made according to their own standard; that it would always or nearly always, come up to the regular standard or go above it. He did not believe that the trade should adopt everybody's standard as a standard for strength. He had seen samples of Allen's leaves that assayed almost twice their stated strength.

Prof. Hynson asked what system was in use by the members to indicate the age of a product. He would like to know how it was possible to tell whether one had fresh drugs in his store or not. Mr. Osseward said, the only way he could suggest was to buy the drugs direct. Mr. Hynson then inquired how, by looking at a container, one could tell the age of its contents? Mr. Osseward replied that there were a number of drugs for which there was not much call, and that he kept a fairly good index of his goods and at stated periods he went over those and in that way he got a very fair idea of how old his stock was. Another and a very important thing was to be careful of the amount of goods purchased. There were many things purchasable in quantity which had an attractive discount, yet he thought the rule to be followed in the purchase of certain goods, was not to purchase more than could be used in a certain number of months.

Dr. Wulling said, that while he could not answer Prof. Hynson's question directly yet he could advance this suggestion. At the University of Minnesota they had demonstrated that a qualified pharmacist can raise his own digitalis, that is the equal of Allen's or any other. Minnesota has a fair climate and any state that had a milder climate ought to be able to succeed better than Minnesota. They had been doing experimental work along this line for three or four years and much of the drug that they had raised had been converted into fluidextract and tincture, but they did not raise sufficient to supply all those who desired to experiment with it. They were cultivating it only for the purposes of education, but they had certainly determined that there was no difficulty in its cultivation, and those of the members who possessed a plot of land ten by fifteen feet in size can raise every year enough digitalis at least for one year. He advised, however, that tests should be made of the drug, both by the pharmacopœial assay and biologically. Possibly every one did not possess the facilities for the latter. Pharmacists in a city could cultivate a little plot of digitalis on the outskirts of the city, but he cautioned them that certain inexperienced botanists have exhibited a mild form of poisoning acquired by handling the drug. Another word of caution was this, that there are many who desire to cultivate medicinal plants who are not qualified by sufficient pharmaceutical training. It was not enough to possess agricultural knowledge but the one who cultivated digitalis should also be a pharmacist. They were advising persons not to attempt the cultivation of medicinal drugs unless they had some sort of pharmaceutical training.

Prof. Hynson said the point he wished to elucidate was that the time had arrived when druggists must have some way of knowing the date of the receipt of his drugs. Some months ago he had asked the receiving-clerks in both stores to date everything that they received. He did not have "August 24, 1914," put on the goods, but he had the stamps made this way, "8—24—4," in consecutive numbering and that told him the story. If anyone had a better suggestion than that he would like to have it explained. He referred to the statement of Mr. Osseward relative to fresh goods and invoices, and he said that his firm had taken an invoice several years ago and that invoice embraced 17,000 different articles. If there were some way to indicate when these articles were purchased it would be most desirable. A member stated that the system used by him was that of employing the first two figures to represent the month of purchase. If an article was purchased in January, he put a zero in front of the one, thus 01. If bought in August the mark on the goods would be "08." The month would be indicated by the first figures, then the next figures show the cost, and the next the day of purchase. Say that the figures are 081725, it will show that the goods were bought on the twenty-fifth of August and that they cost seventeen cents. Initials were added to show from whom the articles were purchased.

Mr. Apple said he had found it to be an advantage to combine the date with the cost-mark.

Chairman Nitardy explained the plan in use by his firm. In order to indicate the date on which any preparation was made, they used a numbering-stamp of which the first two numbers represented the year, and the last three numbers the day of the year;—thus, 14125 meant, the 125th day of the year 1914.

Mr. Osseward said that the main point sought to be brought out by his paper was that we must pay more attention to the storage of our goods.

Mr. Charles T. P. Fennell had occasion to buy some digitalis leaves in March of the present year and he wished to know the exact date of their importation. He ascertained that they were imported in July of 1913, while the jobber from whom he purchased them assured him that they came over in April, 1912. Consequently the stamp did not always accurately indicate the age of the drug. He then asked Dr. Wulling to give them more details as to the cultivation of digitalis in Minnesota.

Dr. Wulling said that they had investigated the matter from different points of view and had made many ash-determinations. The first year's crop met every requirement of the Pharmacopœia. Their results had been remarkable. He had been asked by a number of gentlemen for information regarding the cultivation of this drug and while he did not wish to thrust himself into the discussion, he would be willing to give brief information regarding their experiments if it was so desired.

Mr. Jones inquired if Dr. Wulling would advise the growing of digitalis by pharmacists. Dr. Wulling replied that he could only say, they had tried it in Minnesota with success. He, therefore, would deduce the probability of success elsewhere.

They did not plant the seed in the open. They began indoors in March, in order to have the plants of sufficient size to mature during the first year. In an adjoining room were a number of samples, fifteen or twenty, grown in their medicinal garden. All digitalis whether home-grown or otherwise, should be tested to see that it met the pharmacopœial requirements. A physiological test could be very easily made if one knew how to make it.

Mr. Meyer advised the labelling of infusion of digitalis with a "Shake" and "Keep in a growing the plant in Brooklyn, N. Y., and getting very good results from the first year's crop, sowing the seed out-of-doors. They recently had a demonstration in New York City that was rather interesting, made by two senior students of the College of Pharmacy. These students were sent to Dr. Hatcher for four lessons in pharmacological assaying. They described Dr. Hatcher's methods and they appeared to present no difficult problems.

Mr. Meyer advised the labelling of infusion of digitalis with a "Shake" and "Keep in a Cool Place" labels. He was gratified to learn from Mr. Osseward's paper that sixty-seven percent of the prescriptions described there were for official preparations. This he thought was very encouraging.