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CANADIAN DRUGGIST

VOL. VIII. TORONTO, CANADA, JUNE, 1896. No. 6.

Canadian Druggist

Devoted to the interests of the General Drug Trade and to the Advancement of Pharmacy.

VOL. VIII. TORONTO, JUNE, 1896. No. 6

Canadian Druggist

WILLIAM J. DYAS, PUBLISHER.

Subscription $1 per year in advance.

Advertising rates on application.

The CANADIAN DRUGGIST is issued on the 15th of each month, and all matter for insertion should reach us by the 5th of the month.

New advertisements or changes to be addressed

Canadian Druggist,

11½ RICHMOND ST. WEST,

TORONTO, ONT.

CONTENTS.

The City Druggist of To-day.

We are not desirous of doing our city brethren an injury by commenting upon the state of trade as they find it at the present time, but, if we can prevent any others from crowding an already overcrowded field, we may have accomplished a worthy end. The drug trade of any of our large cities is, undoubtedly, in a very unhealthy condition. There are existent at least one-third more stores than are required. The proximity of the college has done much to generate an overcrowded condition. The clerk whose father has done well on his farm, or in some village or town store, is anxious to do credit to the name he bears, and embanks with a thousand or two in some business which a convenient corner makes speculatively valuable as a drug stand. It takes him a year or two to learn that high rents do not always accompany high profits and an extensive business. While he is learning his lesson, some freshman is preparing for the same ordeal through which he has passed and relieves him of his burden when he has exhausted his resources. A continued renewal of new men with fresh capital keeps going businesses which, for the sake of the entire trade concerned, would be better out of existence. Old established houses in the heart of the city, where rents are excessive, have to withstand competition from large dry goods houses as well as that furnished by renewal capital in outlying stores, and the two combined makes their task to hold their trade a rather difficult one. Added to these difficulties we find that the volume of trade done by any of them during the present depressed times is, at least, 25 per cent. less than when times were more prosperous, and that, coupled with this, profits are from 10 to 20 per cent. less than formerly.

However hopeful human nature may be, it is rather difficult to deduce from these facts a reasonable prospect of good times for city trade for a long time to come, and the inevitable conclusion must be arrived at that only such city druggists as are exceptionally favored by means, abilities, location, and medical support, can hope to make more than a reasonable living.

Those who have maintained their connection with the drug trade for such a period that it would be reasonable to expect them to retire with a competence find that their prospects of doing so are becoming more remote year by year, and the longer they stick to it the smaller their bank account becomes.

Unfortunately for the druggist, his peculiar vocation unfits him for any other unless he possesses natural adaptability for something else, and even when he does he dreads taking chances.

The drug trade of the entire province would stand a good deal of rejuvenating but the chances for the cities being early participators in any revival in trade are too remote to encourage any of our young friends who may be thinking of starting in them. Should there be any who may be thinking of doing so, we would suggest that they first interview some of the older resident druggists, or even a disinterested wholesaler, and learn without having to pay for their experience what the chances were.

Ontario Society of Retail Druggists.

In addition to the names given in our issue of last month, the following have been added to the "Friendly List":

Bauer & Black, Chicago.

H. B. Fould, New York.

The following statement from the secretary, explanatory of the agreement made between the retail and wholesale associations should be carefully read by every druggist. There is nothing in the agreement which should not be rigidly adhered to, and it is in the interest of all parties that strict faith should be kept in this matter and that no cause for complaint should exist. If such be the case the present position will not only be maintained but strengthened, and a state of affairs established which will not only be

a credit to the trade, but will also be a means of securing more profitable basis of business.

AN EXPLANATION OF THE RETAIL AGREEMENT.

First clause: We, the retail druggists of the Province of Ontario, agree to buy our patent and proprietary medicines solely from wholesale druggists and jobbers, and we further agree to co-operate with each other in every legitimate way to promote our common interests and our profession in general.

The reason for the insertion of this clause in our retail agreement was that the wholesale druggists were making complaints that retail druggists were buying their patent and proprietary medicines direct from the manufacturers, and thus the wholesale druggists received no profit or commission on sales thus made, and so it was thought desirable to enlist the sympathies and assistance of the wholesale druggist by the retail druggist promising in the future to buy all patent and proprietary medicines through wholesale druggists. Nearly six hundred and fifty retail druggists have signed this agreement that they will buy all their patent and proprietary medicines from the wholesale druggists, and still complaints reach me from the wholesale druggists that retail druggists are buying their patents direct from the manufacturers. I would request of the retail druggists, if there are any who have thus transgressed their agreement, that in future they will buy their patents through or from the wholesale druggists, and not direct from the manufacturers. By thus keeping faith with the wholesale druggists is the only way to retain their sympathies and assistance. Let us, as retailers, act our part manly and honestly, let us live up to the very letter of our agreement. More of the success of the society depends upon the individual and the united action of the retailers themselves than upon any other branch of the business. Therefore, let us be faithful to our agreement. We admit that this is the retail druggists sacrifice, that it is hard for the retail druggist who has been in the habit of buying jobbers' quantities to see the wisdom in paying the wholesale druggist an increased price for patents that they have been accustomed to buy for a less price direct from the manufacturers, but if the druggist who resides where cutting exists will think of the profit on each bottle that he is losing now, and if he sees a chance of regaining this lost profit, he should not object to paying the wholesale druggist the slight increase in price on his patents. On the other hand, take the druggist who lives where no cutting is being done, still he is losing sales of patent medicines every day by his customers sending away for their medicines to other cities where prices are cut; thus he is losing sales that he ought to have, and if he sees a chance that this kind of business will be stopped he should not object to paying the slightly increased price to the wholesale druggist for his patent medicines. And, further, we agree to help each other in every legitimate way to promote our common interests and our profession in general. Let us not lose sight of this fact, that we are in duty bound to assist each other. We ought to be pleased to see our opposition druggist prosper. How many are glad to hear of the success and prosperity of their opposition? For my part, no customer of any of my brother opposition druggists here in Woodstock is more pleased to see them obtain full prices for their goods than I am. The only way for this condition of affairs to exist is for the druggists in the various villages, towns, and cities to become better acquainted with each other, acquire confidence in each other, arrange all matters of prices between each other, and then each one live up to his agreement. Let district and local associations be held, have them well attended, and, above all, organize all the time and keep everlastingly at it.

Second clause: Also, considering the co-operation of the wholesale druggists and jobbers in matters pertaining to our interests, we agree, all things being equal, to give them the preference over other dealers in the purchase of our sundries.

Wholesalers also complain that this clause is not being adhered to. I would request the retailers to give the wholesale druggists a chance on their sundry orders. If you cannot buy sundries as cheaply from a wholesale druggist as you can elsewhere, you are at perfect liberty to buy where you can do better; but, in the first place, do as you have agreed to do, "give the wholesale druggist the preference." I believe that most, if not all, of the wholesale druggists carry a pretty full assortment of sundries, and, if the retail druggists will encourage them by placing their orders for sundries with them, I am confident that the wholesale druggists will soon carry a large and most complete stock of sundries. Let us do as we have agreed to do, give them the preference in the purchase of our sundries, until we find that we can do better elsewhere. Let us be honest with ourselves and honest with our wholesale friends. It is one of the objects of this Society to endeavor to regulate and confine all sales of drugs and everything pertaining to the drug business to those who are actually engaged in the drug business.

Third clause: We further agree to maintain the prices intended by the manufacturers of patent and proprietary medicines, and to retail drugs, chemicals, and specialties at prices for which they are fairly and usually sold, or, in the case of articles other than patent and proprietary, as agreed upon by the majority of the local or district association.

This clause needs no explanation. It is very clearly and tersely put. In this we agree to maintain the prices intended by the manufacturer, that is, to sell Burdock Blood Bitters at $1 per bottle, and not at 65 cents per bottle. Prices for drugs, etc., are to be those for which they are fairly and usually sold, or they may be prices agreed upon by the district or local association. It is the object of this society to issue a universal price book for the entire province, and have prices more uniform than they are now.

Fourth clause: And we also further agree in no case to substitute in the sale of patent or proprietary articles.

All druggists know what substitution means. Manufacturers complained that the retail druggists did so much substituting that they did not get the full value of their advertising, and, therefore, that they were losing money both in loss of sales and advertising. This clause was inserted in the retail agreement, so that we might obtain the sympathies and assistance of the manufacturers, and we hope and trust that all members will not substitute the goods of any firm of manufacturers whose name is on our friendly list.

Let us be organized, let us understand one another, let us act as one man, let us make ourselves felt, let us have confidence in each other and our society, let each druggist do all he can to promote our common interests, and success must eventually crown our efforts.

Very truly yours,

J. T. PEPPER,
Sec. and Treas. O.S.R.D.

Results of Examination at the Ontario College of Pharmacy, May 1896.

PRIZE MEN.

College Gold Medal—R. A. Gausby, Guelph.

College Silver Medal — J. W. McDougall, Strathroy.

Chemistry Medal—R. A. Gausby, Guelph.

Pharmacy Medal—W. H. Crossland, Barrie.

Materia Medica Medal—J. W. McDougall, Strathroy.

Botany Medal—A. C. Lochead, Parkhill.

D'Avignon Medal—D. E. Munro, Toronto.

HONOR LIST—IN ORDER OF MERIT.

Gausby, R. A., Guelph; McDougall, J. W., Strathroy; Lalonde, W. J., Ottawa; Coates, F. P., Walkerton; Greenshields, W. J., Toronto; Harkness, F. J., Tamworth; Mitchell, J. T., Tilsonburg; Crossland, W. H., Barrie; Master, Walter, Berlin; Renwick, W., Ottawa; McKay, R. L., Linwood; Reid, George, Bright; Hennessey, J. P., Hamilton; Lochead, A. C., Parkhill; Day, F. W., Ottawa; Anderson, J. G., Guelph; Burns, W. C., Cornwall; Westbrook, R. A., Oakland; Robson, W. H., Fenelon Falls; Ross, J. F., Toronto; Samuelson, N., Toronto; Bigham, G. F., Toronto; Edmonds, W., Norwich; McCutcheon, W. J., Cornwall; Jacobs, F. A., Toronto; Palm, O. G., Hamilton; Hoy, C. N., Orillia; Nairn,

Protonuclein..

Tablets.	(100 3-grain Tablets in bottle) per doz.	$9.00
"	(1000 3-grain Tablets in bottle) . each	6 75
Powder.	(1 oz. bottles) . . . . . per doz.	5.00
"	(8 oz. in bottle) . . . . . each	5.50

REED & CARNRICK,

30 Wellington St. East, TORONTO.

Duncan, Flockhart & Co.'s

Blaud Pill Capsules

Are soft and flexible — Never become oxidized
Never become hard — Never vary in strength

These Capsules are put up in 1, 2, and 3-pill sizes, with or without Arsenic, and can be supplied in boxes of 25 or 100 (each). They are prepared by a unique and original process, which entirely overcomes the tendency to **hardening** which is so common in the Blaud **Pills.**

R. L. GIBSON,

30 Wellington St. East,
TORONTO.

SEASON 1896.

BILLINGS, CLAPP & CO.'S

IDEAL

LEMONADE and ROOT BEER TABLETS

Put up in 10-Cent Bottles

Are the best Tablets we have handled, and have given general satisfaction.

They are to the front again this season.
Price: 85 Cents a dozen or $10.00 a gross.

For the Soda Water Fountain.

French, Cave & Co.'s Crush . Violet, Red Orange Phosphate, also Tangerette, Lime Phosfizz, Mulford's Pure Grape Juice, Murchison's Acid Phosphate.

Fresh Stock of

Pepsin Chips and Fruit Chips, Tolu Sugar Plums, Sweet Wheat, After Dinner and Celery Pepsin Gums; Heide's Licorice Pastilles, Chapireau's Cachets, etc.

Adam's Root Beer Extract

15 and 25 cent bottles.

CANADIAN SPECIALTY CO.
38 Front Street East, Toronto, Ont.

FOR SALE: 1 Kingery Ice Breaker and Shaver combined for counter

Fruit Juices

H. B. & W.

QUART CHAMPAGNE BOTTLES.

RED MESSINA ORANGE.
CHERRY RIPE.
IMPERIAL SICILY LEMON.
PINEAPPLE.
RASPBERRY.
STRAWBERRY.
CATAWBA GRAPE.
BANANA.
PEACH.
CALIS YA PHOSPHATE.

CHOCOLATE in 1 lb. and 5 lb. cans.

Bryant's Root Beer

AS OFFERED LAST MONTH

$9.00 per Gross with Sign.

National Formulary.
Excelsior Egg Preserver.
Vaccine in Sealed Glass Tubes.
Genuine St. Thomas Bay Rum.
Eff. Caffeine and Pot. Brom., 25c., "E. & Co."
Syrup of Figs, 50c., "E. & Co."
Insect Powder in Shakers, 15c.
McLachlan's Boiled Sugars.

CORRESPONDENCE RESPECTFULLY SOLICITED.

Elliot & Co.,

5 Front St. East, = Toronto.

D., St. Mary's; Byers, J. R., Norwich; Munro, D. E., Toronto; Parrish, W. M., Port Perry; Thorburn, A. C., Gore Bay; Cox, A. E., Toronto; Gourlay, H., Ottawa; Spencer, H. F., Stratford; Bennett, J. H., London; Pannell, H. S., Kingston; McDougall, A., Ottawa; Atkinson, T. H., Toronto; Laing, C. C., Eden Mills.

PASS LIST—ALPHABETICALLY ARRANGED.

Anderson, A. R., Peterborough; Allan, E. D., Arthur; Bedford, A., Bloomingdale; Bellanger, R. U., Ottawa; Barber, H. J., Alton; Caughell, E. A., Aylmer; Crosher, E. J., Toronto; Carnahan, H., Meaford; Cochrane, W., Renfrew; Colling, E. L., Toronto; Darby, E. F., Harrow; Denike, A. C., Campellford; Dunham, F., Stratford; Dougherty, J. W., Mitchell; Dickson, R. S., Goderich; Elliott, J. E., Windsor; Edmison, G. W. H., Peterborough; Ewart, C. L., Ottawa; Fowlie, A. H., Orillia; Harvey, L. J., Oshawa; Hutton, A. C., Guelph; Hopkins, H. F., Hamilton; Hurlburt, H. E., Thornbury; Horton, G. D., Sarnia; Hillis, C. A., Brockville; Jessop, D. H., Hamilton; Johnston, A. J., St. Mary's; Land, R.A., Hamilton; Lauchland, W.G., Oshawa; Mathieson, J. A., Brockville; Mitchell, E. J., Paisley; Mitchell, J. A., Clarksburg; Montgomery, W. R., Lakefield; Maclennan, A. D., Kemptville; McKenzie, A. P., Watford; McLeod, R., Collingwood; McClung, F. W., Bowmanville; McLachlin, A. F., St. Thomas; McLachlan, J. A., Chesley; Nicoll, J., Norwood; O'Reilley, T., Hastings; Patton, R. J, Paris; Phillips, J. B, Orillia; Quinsey, W. J., Cayuga; Robertson, Homer, Sarnia; Reid, A. T. S., Goderich; Rowley, R., Aurora; Schaaf, H. E., New Hamburg; Stenson, G. T., Peterborough; Smith, J. S., Ailsa Craig; Sills, F. W., Belleville; Taylor, J. F., Hamilton; Walker, J., Toronto; Winter, H. U., Preston; Weeks, A., Uxbridge.

Passed now and on previous occasions:

Carter, H. R., Picton; Johnston, J. A., Toronto; Laird, E. M., Sarnia; Mitchell, Alex., Hamilton; Robertson, H. G., Hamilton; Roy, H. N., Toronto.

Passed in four subjects:

Begg, G. A., Kingston, Dispensing, Pharmacy, Materia Medica, Botany.

Gordon, J. B., Pembroke, Dispensing, Prescriptions, Pharmacy, Botany.

Lawrence, J. W., Sheridan, Dispensing, Prescriptions, Materia Medica, Botany.

Morrow, A. A., Wingham, Dispensing, Prescriptions, Materia Medica, Botany.

Plaant, J. M., Renfrew, Dispensing, Prescriptions, Pharmacy, Botany.

Sissons, J. M., Orillia, Dispensing, Prescriptions, Pharmacy, Botany.

Tobin, B. W. T., Digby, Dispensing, Prescriptions, Chemistry, Materia Medica.

Wilson, J. P., Paisley, Prescriptions, Pharmacy, Materia Medica, Botany.

Passed in Pharmacy:

McNalley, R., Elmwood.

University of Toronto Annual Examinations, 1896.

The following are the questions submitted at the final examination held in May for the degree of Phar. B.

PRESCRIPTIONS.

Examiner: FRANKLIN T. HARRISON, Phar. D.

1. *Criticize* the following combinations. Point out all cases of incompatibility, and say if the mixtures can be satisfactorily dispensed and how?

(*a*) ℞ Quin Sulph..... 20 grs.
Ferri Pyrophos..... 1 dr.
Acid Phosph. dil....f. ½ dr.
Liq. Arsenicalis.....f. 1 dr.
Aquam.....ad f. 4 oz. M.

(*b*) ℞ Bismuth Subnit.....
Sodii Bicarb.....aa 1 dr.
Syr Zinzib..... f. 1 oz.
Aquam..... f. 3 oz. M.

(*c*) ℞ Liq Am. Acet. . . . . f. 2 oz.
Tr. Ferri Perchlor... f. 4 dr.
Mucilag. Acaciæ.... 2 oz.
Sodii Salicylat..... 2 dr.
Aquam.....ad f. 6 oz. M.

(*d*) Boracis.....
Sodii. Bicarb.....aa 2 dr.
Glycerini..... f. 1 oz.
Acidi Carbolici..... fl. ½ dr.
Aquam.....ad. fl. 4 oz. M.

(*e*) Syr. Ferri Iodid .... f. 1 oz.
Sp. Aeth- Nit ..... f. 1 dr.
Pot. Chlor..... 2 dr.
Aquam.....ad. fl. 4 oz.

2. Translate the following prescriptions. State how you would dispense them, giving reasons:

(*a*) ℞ Chloroformi..... f. 1 dr.
Syr. Scillæ.....
" Tolu..... aa. f. ½ oz.
Ol. Olivæ ..... f. 4 dr.
Pulv. Acaciæ....q.s.
Aquam.....ad. fl. 4 oz.

M. Cap. cochl. magn. ii. quarta quaque hora, si tussis increb.

(*b*) ℞ Iodi.....
Pot. Iodid.....aa. 20 grs.
Aquam..... f. 1 dr.
Glycerini..... f. 1 oz.
F. S. A.

Sig—Sæpe utend. ut dicto.

3. What do you understand by incompatibility in prescriptions? Classify and give examples of each kind.

4. How much of each of the following salts can be dissolved in an 8 oz. mixture consisting principally of water? Carbonate of Ammonium, Chlorate of Potassium, Sulphate of Magnesium, Phosphate of Calcium, Rochelle Salts, Cr. Tartar.

5. (*a*) Give average dose for an adult of the following: Chloral Hydrate, Tr. Nux. Vom., Carbolic Acid, Iodine, Borax.

(*b*) Given the dose of a drug for an adult, how would you calculate the dose for a child four years old.

6. Write a prescription in Latin for a 4 oz. mixture containing maximum dose of Strychnine and Arsenic. Also, 2 oz. Simple Syrup, 20 grs. Sulphate of Quinine, and water as much as required. A teaspoonful to be taken before each meal and on going to bed.

B. P. preparations are to be used and chosen with due regard to compatibility.

Also a prescription for 12 Cathartic Pills and direct one to be taken when required.

7. Translate into English the following:

(*a*) Si feb. adest.
(*b*) Pro ratione ætatis.
(*c*) Si malum urgeat.
(*d*) Donec dolor exulaverit.
(*e*) Hujus tantillo illinantur palpebrae omni vespere. Ope plumae mollis.
(*f*) Sumat æger poculum omni bihoris.
(*g*) Capiat quarta quaque die.

PRACTICAL DISPENSING.

Examiner: FRANKLIN T. HARRISON, Phar. D.

NOTE.—The following prescriptions are to be dispensed with neatness, accuracy, and despatch, labelled and wrapped as if designed for patients. The order and cleanliness in which the desk, with its stock of utensils, is left will be rated.

1. MR. JANES.

℞ Ext. Bellad ..... 1 gr.
Ol. Theobrom q. s. ut fiat soppos. Mitte tales quatuor.

Sig: Statim utend. et repet. si op sit.

2. THOS. ROLAND, ESQ.

℞ Camphorae..... 6 grs.
Plumbi Acet.....18 grs.
Pulv. Opii..... 6 grs.
M ft. mass: div. in pil. xii.

Sig: Cap. pil. ter quarterve die.

3. MR. R. E. SANGSTER.

℞ Hydrarg. Ammon ....20 grs.
Vaseline..... ½ oz.
M. ft. ung.

Sig: Appl. more dictu, bis die.

4. MRS. CHILDS.

℞. Emp. Plumbi..... 3 in. dia. (round.)

Sig: Admov lateri sinist.

PRACTICAL PHARMACY.

Examiner—FRANKLIN T. HARRISON, PHAR.D.

1. Prepare 3 oz. of a solution of Acetate of Ammonium by the following formula:

Acetic Acid 500cc.
Carbonate of Ammonium—a sufficiency.
Distilled Water —a sufficiency.

Crush the Carbonate of Ammonium and add it gradually to the Acetic Acid until a neutral solution results, then add sufficient distilled water to yield 600cc of product.

A little of the solution heated in a test tube, to expel Carbonic Acid, should be neutral to test papers.

(*a*) State the amount of each substance used.

(*b*) Give reason for using Carbonate of Ammonium rather than solution of Ammonia.

(*c*) How should the solution be stored.

2. Purify and exhibit in granular form the sample of impure Chloride of Ammonium submitted.

PROCESS.

Dissolve 4 drachms of the Chloride of Ammonium in about 6 drachms of water with the aid of heat, add about ½ drachm of Solution of Ammonia, continue the heat for a few minutes, filter, and evaporate to dryness on Water Bath with constant stirring.

(*a*) State the weight of your purified sample.

(*b*) Give reason for each step of process.

PHARMACY AND PHARMACEUTICAL CHEMISTRY.

Examiner FRANKLIN F. HARRISON, PHM. D.

1. A drug contains: Albuminoids, Chlorophyll, Fixed Oil, Volatile Oil, Cellulose, Sugar, and Starch. It is extracted with the following menstrua successively: (1) Pure Ether; (2) Alcohol, 90 per cent.; (3) Cold Water; (4) Hot Water. Where would you expect to find the various constituents?

2. Dialysis: Give brief description of the process, and state its practical application to Pharmacy.

3. Give practical notes on the preparation of the Scale Salts, and more particularly of Citrate of Iron and Quinine.

4. Describe the preparation of Pyroxylin, and say why Sulphuric Acid is used. For what is it used in Pharmacy?

5. State proportion of active ingredient, and method of estimating same, in Mercurial Ointment, Diluted Hydrocyanic Acid, Strong Solution of Perchloride of Iron, Strong Solution of Ammonia and Solution of Chlorine.

6. Give alkaloidal strength of the following: Soluline of Hydrochlorate of Strychnine, Tincture of Nux Vomica, Liquid Extract of Cinchona, Solution of Acetate of Morphine and Citrate of Iron and Quinine.

7. Acidum Tartaricum: Give its preparation, characters, tests, and pharmaceutical uses.

8. Acidum Nitro-hydrochloricum Dilutum:

(*a*) How is it prepared?

(*b*) What compounds are present in the finished product?

CHEMISTRY—ORGANIC AND INORGANIC.

Examiner—GRAHAM CHAMBERS, B.A., M.B.

1. Explain the meaning of the following terms: (*a*) Dissociation, (*b*) Oxidation, (*c*) Alum, (*d*) Atomic weight, (*e*) Amine, (*f*) Carbohydrate, (*g*) Glucoside.

2. Describe the properties of Hydrogen Peroxide. What is meant by a ten-volume solution? Write an equation illustrating the action of Hydrogen Peroxide on a solution of Potassium Permanganate acidified with Sulphuric Acid.

3. Give an account of the manufacture of two of the following substances—give equations: Orthophosphoric Acid, Calomel, Sulphuric Acid, Sodium Carbonate.

4. Write equations illustrating the action of

(*a*) Potassium Hydrate on Chloral.

(*b*) Nitric acid and Sulphuric acid on Glycerine.

(*c*) Hydrogen Sulphide on Ferric Chloride.

(*d*) Strong Nitric acid on Tin.

(*e*) Heat on Ammonium Bichromate.

5. Give an account of the chemistry of Zinc. How would you distinguish Zinc Sulphate from Aluminium Sulphate?

6. Describe the manufacture of Ethyl Alcohol from cane sugar. How is the strength of an alcoholic solution determined?

7. Write the constitutional formulæ of Ethyl Alcohol, Glycerine, Phenol, Salicylic Acid, Ethyl Chloride, Chloroform.

8. Give an account of the group of organic compounds known as Aldehydes.

ANALYTICAL CHEMISTRY.

Examiner—GRAHAM CHAMBERS, B.A., M.B.

1. Detect the acid and base in substance marked "A."

2. Detect the acid and base in substance marked "B."

3. Detect the acid in substance marked "C."

4. Detect the base in substance marked "D."

5. Does the solution marked "E" contain strychnine, or morphine?

6. Write equations illustrating the chemical changes which occur in treating substance marked "D."

7. Oral examination.

MATERIA MEDICA.

Examiner—L. E. ASHTON, PHM.B.

1. Name five drugs from the animal kingdom, one of each class, giving order and use of each.

2. (*a*) Volatile Oil of Mustard.

Give its botanical source: by what factors is it produced?

(*b*) Oleum Theobromæ.

Give its botanical source and melting point.

(3) Write full materia medica notes on Digitalis.

4. (*a*) Pilocarpine, (*b*) Eserine.

Describe briefly the *marked* appearance of the source of each. Submit sketch. What is the action of each?

5. State to which group of proximate principles each of the following belongs; also giving part used, botanical source, natural order and habitat of the plants which yield these active constituents (write answer in tabular form).

Hydrastine, Santonin, Menthol, Aconitine, Strophanthin, Arbutin, Salicinum, Homatropine, Rottlerin, Convolvulin.

6. Guarana: Give source and habitat. How is it prepared for the market? What are its important constituents.

7. Give doses of: Pulv. Elaterini Co. Codeine, Creasote, P. Scillæ, Ac. Benzoic, Liq. Donovani, Tr. Capsici, Ext. Belladon, Alc, Caffeine Citrate, Tr. Strophanthi.

8. Oleum Jecoris Aselli: write short therapeutic notes on its digestion, mentioning the functions by which it reaches the blood stream in its absorption. What is its chief value as a remedial agent?

PHARMACOGNOSY AND MICROSCOPY.

Examiner—L. E. ASHTON, PHM.B.

1. Name the gross specimens submitted.

2. Name and draw diagram of any one of the microscopic slides.

3. Oral.

BOTANY.

Examiner—A. Y. SCOTT, B.A., M.D.C.M.

1. Define the terms: (*a*) phyllotaxy, (*b*) stomata, (*c*) druse, (*d*) corm, (*e*) glume.

2. Describe the ovule of a gymnosperm and how does it differ from that of an angiosperm.

3. Draw and describe a transverse section of the rhizome of a fern.

4. Describe the process of pollination and fertilization and the means taken by nature to aid cross fertilization.

5. Explain the process of assimilation in the vegetable kingdom.

6. Describe the reproduction of Puccinia Graminis. What is alternation of generations?

7. Algæ and Fungi are said to be morphologically the same, physiologically different. Explain fully.

PRACTICAL BOTANY.

Examiner—A. Y. SCOTT, B.A., M.D.C.M.

1. Specimen A. Describe the inflorescence.

2. Specimens B, C, D. Describe and classify.

3. Specimen E. Draw and describe a transverse section.

4. Specimen F. Describe and classify, giving reasons for so doing.

Bachelor of Pharmacy.

The following graduates of the Ontario College of Pharmacy secured the degree of Phm. B. at the recent examination held at the University of Toronto:

J. G. Anderson, T. H. Atkinson, A. Bedford, J. H. Bennett, G. F. Bigham, W. B. Burns, J. R. Byers, H. Carnahan, E. P. Coates, A. E. Cox, W. H. Crossland, E. F. Darby, A. C. Denike, F. M. Denham, G. W. H. Edmison, W. E. Edmonds, J. E. Elliott, C. L. Ewart, A. H. Fowlie, R. A. Gausby, H. A. Gourlay, W. J. Greenshields, L. J. Harvey, J. P. Hennessey, H. S. Hopkin, G. D. Horton, C. N. Hoy, Hurlburt, A. C. Hutton, F. A. Jacobs, J. A. Jamieson, A. J. Johnston, C. C. Laing, W. J. Lalonde, R. A. Land, W. G. Lauchland, F. W. McClung, R. R. McKay, A. P. McKenzie, R. McLeod, W. Master, J. A. Mathieson, J. T. Mitchell, D. E. Munro, D. Nairn, J. Nicoll, O G. Palm, H. S Panell, W. M. Parish, R. J. Patton, A. T. S. Reid, G. D. Reid, H. R. Robertson, W. H. Robson, J. R. Ross, W. Samuelson, H. E. Schaaf, F. W. Sills, J. S. Smith, H. F. Spencer, G. T. Stenson, J. F. Taylor, J. Walker, Weshrook, H. N. Winter.

READ THIS

Dear Sirs, St. Marys, August 3rd, 1892.
The following may be of use to you: "A customer of mine, who keeps a butcher shop in this town, bought a 10 cent package of your Fly Pads from me and in ten days killed over A BUSHEL MEASURE OF FLIES." Yours truly,
F. G. SANDERSON.

IT WOULD TAKE OVER 300 SHEETS OF STICKY PAPER TO HOLD THIS BUSHEL OF FLIES

WILSON'S
FLY PADS
SOLD BY ALL DRUGGISTS

Sell . . .

WILSON'S FLY PADS

They are far more destructive than any other Fly Poison, and will always give your customers satisfaction.

Beware of imitations got up to sell on the reputation of *Wilson's Fly Pads.*

WILSON'S ROOT BEER

Has taken the trade by storm. Already we have sold far more than during the whole of last season, and the demand is increasing fast. Without doubt **Wilson's is the best Root Beer. Each 10-cent bottle makes five gallons.**

Archdale Wilson & Co.,
Hamilton.

TO RENT.

Best Drug Stand in Canada

The most desirable unoccupied stand in Canada is the corner store of the MASONIC TEMPLE, LONDON, and very little investigation will convince anyone of the fact.

It is the nearest to all the hotels, the railway station, and the market, besides adjoining the Grand Opera House, and a large transient trade can be had.

The shop is on the corner of Richmond and King streets, is heated by steam, and the rent (which is very moderate) includes both heat and taxes.

A smart, active man who has the confidence of the medical profession should make a fortune here. There are several wholesalers in the city, and only a moderate stock need be carried.

For terms and other particulars apply to

John Overell,
Secretary Masonic Temple Co.,
London, Ont.

FRONT AND BACK VIEW

The Silver Truss

IS A NEW INVENTION,
NEW IN PRINCIPLE,
NEW IN DESIGN,
NEW IN APPLICATION,
and the MOST PERFECT KNOWN.

The great success of this Truss in holding with comfort all kinds of hernia, whether adults, youths, or infants, all over Canada, the United States, and Europe, is phenomenal. They have been adopted by leading hospitals, surgeons, and rupture specialists of the United States, and by Westminster and Guy's Hospitals, London, Eng. No greater recommendation could be accorded any appliance than its adoption by the physicians and surgeons comprising the staffs of these hospitals, which rank among the largest and best in the world.

MANUFACTURED BY

THE SMITH MANUF'G CO., GALT, ONT.

Trade Notes.

Frank Heyd has purchased the drug business of Dr. Welford, of Woodstock, Ont.

Samuel Hanson, formerly of Victoria, B.C., has opened a drug store at Kaslo, B.C.

E. G. Lemaitre has purchased the drug store of Josiah Green, Queen street west, Toronto.

James E. Davis, of Goderich, has opened a branch drug store at Dungannon, Ont.

W. A. Griffiths & Co., Vancouver, B.C., have removed their drug store to 140-142 Cordova street.

A drug store has been opened in the building formerly occupied as a general store by Bartlett & Robinson, Mount Bridges, Ont.

Alex. B. Sutherland has been granted letters of administration for the estate of the late Owen F. Botsford, druggist, of Queen street, Toronto.

The Toronto Pharmacal Co. are now in possession of their warerooms at 136 Bay street, Toronto, and are in a position to cater to the wants of the retail drug trade.

Thomas B. Taylor, druggist, Watford, Ont., has removed to his new store in Dodd's block, which he has had handsomely fitted up and capitally arranged for the display and storing of the varied lines which he carries.

After an absence of two years, Mr. W. J. Corbett, representing C. W. White & Co., Boston, Mass, manufacturers of trusses, etc., is again making a trip through Canada. Mr. C. R. Corbett, a brother of the above, is calling on the trade in the eastern provinces for the same house.

Edward Giroux and F. X. Langelier (The National Pharmacy Co.), 216 St. Lawrence street, Montreal, have assigned. Liabilities about $4,500. Amongst the principal creditors are Seabury & Johnson, New York, $502; N. F. & G. Guertin, $500; Lyman, Sons & Co., $677; Lyman, Knox & Co., $705.

The Nyassau Medicine Co., Ltd., of Truro, N.S., have completed their organization, and will shortly commence manufacturing. Capital stock, $40,000. The directors are James E. Bigelow, president; J. D. McKay, vice-president; Daniel Gunn, secretary-treasurer; J. G. Aikman, C. D. Muir, W. H. Adams, and J. A. Dickson, all of Truro.

In consequence of the death of Mr. A. J. Langley, the wholesale drug firm of Langley & Co., Victoria, B.C., has been changed to Langley & Henderson Bros., and is now composed of Messrs. J. N. Henderson, T. M. Henderson, and Wm. Henderson. The Vancouver branch of the business will be under the management of Mr. J. A. Henderson.

Mr. Hugh Miller celebrated his seventy-eighth birthday on June 2nd, having been born at Inverness, Scotland, June 2nd, 1818. Mr. Miller commenced his drug business in the stand which he now occupies, 167 King street east, Toronto, in 1842, and is consequently one of the oldest druggists in the city. He is also a Justice of the Peace and assistant Police Magistrate of Toronto.

Prince Edward Island Notes.

Mr. L. W. Watson has been seriously ill, but is now able to attend to business again.

Dr. Dodd has added largely to the appearance of his store by interior decoration.

The number of druggists in Charlottetown selling fishing gear has been increased by two this season, and still trade in this item seems brisk. It looks as though everyone in Charlottetown must have a fishing outfit and a bicycle.

Business in the drug line is reported very dull from Prince Edward Island.

British Columbia Notes.

Mr. Charles Nelson has decided to retire from the position of secretary-treasurer-registrar of the British Columbia Pharmaceutical Association, it taking up too much of his time. His resignation will be handed in to the council when they meet on June 11th.

The semi annual examinations take place in Vancouver on June 3rd and 4th. There are three applicants for preliminary, four for minor, and one for major.

The annual meeting of the association takes place in New Westminster on June 11th, when the new officers will be re-elected, etc. After the meeting the annual banquet will be held.

Departure of Mr Laurance.

Our readers, and especially those who are interested in optical work, will regret to learn that Mr. Lionel Laurance, principal of the Optical Institute of Canada, has resigned his position, and is removing from Toronto. Those students who have studied under him, and all who know him personally, bear testimony to his thorough knowledge of the science of optics, and the faculty of imparting instruction, as well as his great interest in all those who have graduated from his institute. We understand it is the intention of Mr. Laurance to take up his residence in Europe for some time. We are pleased, however, to inform our readers that the excellent articles on optics contributed by him to THE CANADIAN DRUGGIST will still be continued, and that these papers, which have been so highly spoken of and appreciated by opticians, as evidenced by the numerous letters we have received, will still be a leading feature in our columns.

Montreal College of Pharmacy.

At the first meeting of the new board, Mr. A. J. Laurence was elected vice-president, and Mr. H. W. Reynolds was added to the council. Mr. Alexander Manson having sent in his resignation to the board as treasurer, Mr. E. Muir was made a member of the board and secretary-treasurer. The following is the

ANNUAL REPORT.

Your board desire, upon retiring from office, to lay before the members of the college a synopsis of the work done during the past year.

The meetings of the board have been regularly held and fairly well attended, and at their meetings matters of interest to the college have been duly considered, and decided, in the judgment of the board, for the best interests of the college in general. During the months of July and August, as usual, no sittings of the board were held.

At the last annual meeting it was moved by Mr. Contant, seconded by Mr. Morrison, that the invitation of the previous year, given to the American Pharmaceutical Association, to hold their annual meeting of 1895 in the city of Montreal, be extended to them for their annual meeting of 1896, and that the same committee then appointed be requested to act. In accordance with this resolution, your board felt it their duty to renew the invitation to the American Pharmaceutical Association to hold their annual meeting of 1896 in this city. This invitation has been gracefully accepted, and they will assemble here on the 12th of August next, and your board trust that the members of the college will do all in their power to make the coming of such a distinguished and honorable body so much of a success that our American friends will leave us highly pleased with the hospitality shown them during their stay here. A vacancy having occurred in the faculty of the college by the resignation of Dr. DesRosiers, Mr. H. R. Lanctot was elected to fill the chair of Professor of Materia Medica for the French class, but, owing to failing health, Mr. Lanctot was reluctantly obliged to send in his resignation to the board, when Mr. J.E.W. Lecours was appointed to take his place, Mr. Lecours completing the course of lectures which had been begun by Mr. Lanctot.

Your board, in fulfilment of a promise given by the president during the previous session, appointed Mr. Joseph E. Morrison to give a course of lectures on Botany in French, this class being fairly well attended. At a meeting of the board held in January last, the question of changing the curriculum was fully discussed, the board deciding that the classes be divided into junior and senior classes in Materia Medica and Chemistry, said classes to alternate each year. They also made a thorough reorganization of the curriculum of study, adapting it to

the wants of the various new classes. This curriculum has been published, and, although not as perfect as it might have been, has been approved of by the professors and highly appreciated by the students. In making this change your board feared that it would be prejudicial to the financial interests of the college. This, to some extent, has been the case, as the receipts from entrance and lecture fees of the past year show a deficiency of $345 as compared with the receipts of the previous year.

Your board, in order in a measure to increase the membership of the college, decided to change the by-law on membership, as then existing, under which none but licentiates of pharmacy could become members, passed the following resolution, namely: "That in future a new section be added to By-law No. 2, and read as follows: 'Persons eligible to become members of the college, other than licentiates of pharmacy in active business, shall be licentiates of pharmacy not in active membership in the Pharmaceutical Association of the Province of Quebec: graduates of the Montreal College of Pharmacy who have taken the full course of the college, and who have passed the required examinations; benefactors, either as individuals or as members of firms, to the extent of fifty dollars in cash or donations of the same value. Benefactors, to be eligible, must be connected with pharmacy or its allied sciences.'"

Your board regret to report that the two students, R. G. Rioux and J. A. Gauvin, who were suspended from the college during the session of 1894 and 1895 for insubordination, had seen fit to press their suits against the college. Your board had hoped that, after mature consideration, they would have withdrawn their actions; but this they did not do, and the two cases were argued before Judge Ouimet last December, and, after a three days' hearing, was by him taken *en delibre*, but up to the present time he has not delivered judgment. Why this delay your board are at a loss to account for; however, the attorneys for the college are quite sanguine that the judgment, when rendered, will be in favor of the college.

Your board have to report that the usual sessional examinations were held in December and March last, resulting in the following students passing, namely: Botany—Jas. A. Gillespie, A. Lebeau, W. F. Roach, J. A. H Charbonneau, C. M. DuGay, T. E. Gagner. Senior Materia Medica—W. A. Smallwood, R. J. Lunny, W. F. Roach, D. R. O'Neill, Jas. Franckum. Junior Chemistry—W. A. Smallwood, R. H. D. Benn, G. H. Voss, F. J. Lemaistre. The prize students are as follows: Botany — Jas. A. Gillespie. Junior Materia Medica — Henri St. Georges. Senior Materia Medica—R. J. Lunny, W. F. Roach. Junior Chemistry —R. H. D. Benn and Geo. H. Voss, equal.

Your board have to report that the gold medal donated by Mr. A. E. Holden has been awarded to Mr. Jas. A. Gillespie, and the minor prize, donated by Mr. A. J. Laurence, was awarded to Mr. R. J. Lunny.

In connection with these prizes your board are pleased to announce that Mr. J. R. Parkin has kindly offered the gold medal for competition at the spring examinations of 1897, and it is hoped that some member present will contribute the minor prize, so that these prizes may be inserted in the next annual announcement.

Your board have to report eighty-six students having entered for the lectures of the past session. The professors report the attendance and conduct of the students to have been very satisfactory.

Your board beg to report that the mortgage of $2,000 held by the Sun Life Insurance Company against the college property matured on May 1st, and that for good and valid reasons your board decided to change this mortgage, which is now paid off, and a new mortgage for $2,000 given to l'Alliance National for five years, at 5½ per cent. interest.

The treasurer's statement will be laid before you, showing a balance in the hands of the treasurer on April 30th, 1896, of $846.78, after paying all expenses, and the sum of $100 cost on account of the lawsuits against the college, all of which is respectfully submitted.

MONTREAL COLLEGE OF PHARMACY IN ACCOUNT WITH ALEXANDER MANSON, TREASURER.

1895.				
May 1.	To Balance in Bank, ...		$ 962 05	
	Cash from the Secretary at various times. . . .		1747 07	
	Interest		33 48	
	Donation from Pharmaceutical Association. .		100 00	
				$2,842 33
1895.				
May 14.	By Cash paid Montreal Gas Company.....	$	8 45	
17.	Water account		6 61	
23.	Cash paid College Building Fund.. . . .		40 00	
June 17.	Cash paid E. M. Renouf.		20 00	
17.	W. Foster Brown..		5 53	
18.	*La Presse*		4 00	
18.	*Star*, ...		4 59	
24.	Auer Light Co. . .		6 60	
Augt. 14.	Gas Co.....		11 00	
Oct. 12.	D. Bentley & Co		44 05	
Nov. 8.	Thos. Ligget & Co.		7 78	
16.	Geo. W. Cameron..		75 54	
Dec. 19.	A. D. Downes .		10 00	
20.	Bisaillon Brosseau & Lajoie. ..		100 09	
23.	J. H. Jones & Co..		13 10	
1896.				
March 6.	Waterworks acct..		6 68	
Apr. 21.	Lyman Sons & Co.		18 70	
21.	Kerry Watson & Co . .		11 77	
30.	Professors' lecture fees		1200 00	
30.	E. Muir, secretary, salary . . .		400 00	
30.	Balance in Treasurer's hands and bank . .		846 78	
				$2,842 33

Pharmaceutical Association, District No. 7.

The regular annual meeting of District No. 7 of the Pharmaceutical Association was held at Georgetown, May 21st, 1896, with President T. P. Smith, of Elora, in the chair.

After the secretary, Mr. Stewart, of Guelph, had read the minutes of the last meeting and they were comfirmed, a nominating committee consisting of Messrs. Wood, Kannawin, McCollom, Ruston and Phillips, was appointed, who, after meeting, recommended the following committees, which on motion was adopted.

Committee on Chemistry, Pharmacy and Legislation—Stewart, Perry, Yeomans, Norris, Wood.

Committee on Trade and Commerce—Smith, Turner, Phillips, Petrie, Morrow.

Committee on Grievances—Perry, Colcleugh, McCollom, Stevenson, Smith.

Committee on Entertainment—Dodds, Maddock, Kannawin, Law, Jamieson.

After the committees were appointed the election of officers was proceeded with, resulting as follows: President, T. P. Smith, re-elected; first vice-president. T. Ruston; second vice president, A. Jamieson; third vice-president, R. Woods; treasurer, R. Phillips; secretary, A. Higginbotham; auditors, Stevenson and Wood.

After the election of officers, the auditor reported everything satisfactory, with a balance of $62.51. The report was adopted.

Moved by R. Phillips, seconded by R. Wood, that we meet in Guelph on the second Monday in May 1897.

A vote of thanks was tendered the retiring secretary, Mr. Stewart, who in accepting same thanked the members for their kind words, stating that any little help that he could give was given cheerfully, as he believed in and heartily sympathized with the aims of the association.

It was decided that the association should be represented at the next annual meeting of the Ontario Association, and on motion Messrs. Smith and Stewart were deputed to attend same, this association defraying their expenses. President Smith, having been in communication with Secretary Pepper of the Ontario Society of Retail Druggists, gave the meeting the benefit therefrom in a very thorough manner, covering the aims and work of that association, after which the following resolution was passed:

That this association expresses itself as in full accord with the objects of the Ontario Society of Retail Druggists, and that we recognize the necessity and importance of all retail druggists uniting to overcome the cutting system and in seeking to further the best interest of the trade, and that this association pledge itself to co-operate with and support in every way possible the Ontario Society of Retail Druggists in attaining the objects it seeks.

The meeting then adjourned.

A. HIGGINBOTHAM,
Secretary District No. 7.

Milton.

Cacao butter is recommended as the best excipient for making pills of creosotal.

To preserve chloroform dissolve one part of sulphur in one thousand parts of chloroform.

Is It Necessary that the Pharmacist Should be a Chemist?

Is it necessary that a pianist should have hands?

The average druggist conducts his business without any knowledge of chemistry, and yet very few accidents directly traced to his lack of chemical knowledge seem to be reported. Neither the proprietor nor any one of his employees may have the slightest acquaintance with chemistry; but as no protest is offered by those whom they serve, they might well conclude that the drug business can be conveniently and profitably carried on without any reference to the chemical properties of matter. A man who is entirely innocent of all chemical knowledge naturally fails to appreciate its importance, especially if his own experience has been such as to confirm in him the comfortable belief that he can get along without it. Thousands of men follow the advice of wholly incompetent physicians and take the medicines dispensed by men who know nothing about pharmacy, and other thousands use dangerous quack medicines, with apparent impunity. Thousands of soldiers fight battle after battle without being wounded.

But the intelligent and safe practice of pharmacy is nevertheless impossible without a good knowledge of the laws of chemistry. Such a knowledge of chemistry as is necessary to the pharmacist of to-day and to-morrow can never be gained by mere reading, by attendance upon lectures, or by such instruction and practice as may be obtained in the drug store. Laboratory courses extending over many months, embracing many hundreds of hours of actual practice in well-equipped laboratories, under experienced teachers, and covering analytical as well as synthetical work, quantitative as well as qualitative examinations, are necessary.

The knowledge and training thus acquired are necessary in the identification of medicinal substances, in the examination of their quality, purity, and strength, in the valuation of crude drugs as well as finished preparations, in the making of pharmaceutical products, in the proper preservation of medicines, and in combining one medicine with another. In other words, there is very little pharmaceutical work that can be intelligently performed without a practical knowledge of chemistry. Even in the work of cleaning mortars and other apparatus and implements, a knowledge of the action of acids, alkalies, etc., upon different substances, is of the most direct and practical value.

The apprentice ought to know, before the beginning of his drug store employment, the nature and properties of acids, alkalies, salts, and other compounds, and their relations to each other. He should also know a good deal about the water-solubilities of the various classes of chemical compounds, and have a general knowledge of certain other important properties of the materials with which the pharmacist is concerned, and which can be effectively studied only from the standpoint of chemistry.

The chemistry not only of *inorganic* but also of *organic* medicinal substances must be familiar to the pharmacist to a considerable extent. The properties of the various classes of chemical constituents of plant drugs must be known to him. He must be able to foretell, as well as understand, the many chemical results which attend upon his work, whether in the laboratory or at the dispensing table. —*Bulletin of Pharmacy.*

Pharmaceutical Reform in Germany.

Germany has hitherto been regarded as one of the countries where the practice of pharmacy was carried on under peculiarly favorable conditions — the system of limiting the number of pharmacies in proportion to population has prevented competition, the dispensing of medicine has been entirely in the hands of qualified pharmacists, and the education of those entering the business has been such as to ensure their occupying a position of social equality with members of the medical profession. But within recent years changes have taken place which have adversely influenced the position of German pharmacists. One result of the system of limitation has been to raise considerably the value of a pharmacist's business, and in some instances this has been done in such a manner as to be regarded by the government authorities as a public scandal. In addition, there has been, under this system, much difficulty in obtaining a business, and as a result the younger members of the body have not been able to take an independent position as soon as they desired.

The regulation of the practice of pharmacy has consequently been for many years past a subject of anxious consideration by the German Government, and probably not less so by all connected with the business.

The substitution in 1811 of concessions in the place of privileges or charters granted by the State as the authority under which a business was carried on did not materially affect the proprietary interest of the individual to whom a business belonged, and in practice a concession has been as much a piece of saleable property as a privilege. But subsequently a third form authorization was introduced —the personal concession—by which individuals obtain from the government permission to carry on business without having also the power of transferring the business, by sale or otherwise, to another individual. So that when the owner of a business carried on under a personal concession retires or dies, the continuance of the business is entirely subject to the control of the government.

At the present time there are in Germany 5,162 pharmaceutical establishments. Of these 1,820 are conducted under the authority of State privileges, 2,352 under concessions, and 764 under personal concessions, only this last-named authority having been granted since 1894. The German Government is now contemplating the establishment of a system throughout the country by which authority to carry on business as a pharmacist or "apotheker" would be granted only by personal concession. By that means it is considered that the sometimes artificially increased prices of pharmacies would be prevented, greater opportunity afforded to the younger qualified men to go into business on their own account, and probably there may also be an expectation that under the new system a reduction in the cost of medicines might be effected.

In regard to this project the owners of pharmacies are naturally opposed to its introduction, and that is also the case with the greater number of those who are still in the position of assistants. One of the chief grounds of objection is that the pharmacist would be to a great extent only a government official—he would not have power to dispose of his interest in a business and to retire with advantage. But, above all, those who are possessors of establishments apprehend considerable depreciation of their value, since the government has so far given no indication that, in abolishing the older systems, any but the holders of privileges would receive compensation. If the concessions were to be abolished without compensation of the present holders, the result would be practically one of confiscation. Even the projects by which it is proposed to provide against the contingency, by a process of redemption, are not altogether satisfactory, because the present owners would have to pay for the provision so made, although their disappropriation would not be so apparent.

Quite recently a commission has been appointed by the German Government to consider the whole subject of regulation of the practice of pharmacy, and it met in the early part of April last. The result of its deliberation does not appear to have been decisive in any direction, but rather to have shown that agreement between the different parties cannot be looked for without the intervention of the government. Under these conditions the introduction of a legislative measure by the State is awaited with great interest.—*Pharmaceutical Journal (Eng.).*

To make a permanent aqueous solution of thymol it has been suggested that the thymol be dissolved in soda solution, each litre dissolving one-half gramme of thymol. The soda solution must, however, be prepared with distilled water.

FOR DANGEROUS NOSE BLEEDING.—A prominent eastern physician recommends a common powder puff fungus. The powder is snuffed up the nostrils and the bleeding will immediately cease as soon as contact is made.

Pharmaceutical Notes.

KOENIG'S ANTISEPTIC SALT, largely sold in Germany as a preservative, consists (*Phar. Centralb.*) of 15 per cent. of acid ammonium fluoride, and 85 per cent. of hydrofluosilicic acid.

A NEW METHOD OF APPLYING LEECHES.—The leech is placed in a large test tube partly filled with water. The open end of the tube is then placed against the part, when the leech promptly fixes itself to the skin.

NEW REMEDIES.—Quinoform is the name given by de Vrij to the precipitate formed by the addition of hydrochloric acid to a mixture of extract of cinchona mixed with formalin. Hemicranin and laxol are two American remedies. The former is a mixture of 5 parts of phenacetin, 1 part of caffeine, and 1 part of citric acid; the latter is a mixture of saccharin and peppermint oil with castor oil. Orphol is the name given to a naphthol-bismuth. Salhypnone is benzoyl-methyl salicylic ether.—*Brit. and Col. Drug.*

Dr. Lanarelle recommends the following as a nutrient medium for microbes in water: Gelatin, 20 parts; dry peptone, 10 parts; sodium chloride, 10 parts; potassium nitrate, 1 part; distilled (sterilized) water sufficient to make 100 fluid parts. This may be preserved in sterilized tubes: for use add 10 C.c. of this solution to 100 C.c. of the water; this will give a nutrient medium containing gelatin, 2 grammes peptone, 1 gramme (*Mod. Medic.*)

MUSTARD AS A DEODORIZER AND ANTISEPTIC.—Mustard is a very efficient deodorizer for the hands after working with anatomical material; and a well-known surgeon is recorded to have gone directly from a dissection to his operating room after such disinfection. In a case in which the fingers could not be deodorized by the ordinary means after removing the tube from the throat of a patient dead of diphtheria, mustard was efficacious. It may be employed, therefore, in any case when speedy and thorough disinfection of the hands is required; after post-mortems, removal of placental remains from the uterus, the opening of abscesses, the handling of gangrenous parts, etc. Not the least of its advantages is the fact that it is to be found in every household.—*Zeitschrift f. Krankenpflege.*

TO DETECT TURMERIC IN POWDERED DRUGS.—The *Journal de Pharmacie d' Anvers* recommends the following process for the detection of turmeric in powdered rhubarb, mustard, etc.: Add a drop of oil of anise or fennel to a small sample of the suspected powder placed on a glass slip, and examine under the microscope with transmitted light. If the oil is colored yellow it is proof positive of the presence of turmeric.

Preparing Aqueous Thymol Solutions.

Pharmaceutische Centralhalle directs as follows: Inasmuch as thymol is a good antiseptic, it is seldom or only rarely used by itself, for the simple reason that it is not sufficiently soluble in water. In order to dissolve one gram of thymol in a litre of water, fifty grams of alcohol are required to effect a perfect solution, which, in cases of wounds, causes considerable pain, and is, therefore, objectionable. The addition of caustic soda increases the solubility of thymol in water, but the solution becomes turbid and throws down a more or less dense precipitate.

The aforementioned objections are remedied by following the directions of Hermite (*Revue intern. et sem. med.*), who recommends the addition of tartaric acid in connection with caustic soda. The following is his formula:

Thymol.	
Tartaric Acid.	
Caustic Soda.....	of each one gram.
Water.....	two litres.

Dissolve the tartaric acid, caustic soda, and thymol in a little lukewarm water, and add thereto the remainder of water. —*Meyer Bros. Druggist.*

Sublimation and Distillation in Shop Bottles.

On the interior of shop bottles containing volatile substances, either solid or liquid, there will frequently be noted a deposition which, in the case of solids, is generally crystalline in character, the liquid, of course, consisting merely of aggregations of small drops. On turning the shop bottle around this will disappear. Eliesegang has observed (*Naturwissenschaft-Wochenol*) that the condensation is not necessarily on the side of the bottle which is coolest; that therefore it is not merely the influence of heat to which this phenomenon is due, and careful observation has proven that the deposition takes place upon that portion of the container upon which the greatest amount of light falls. This is true whether artificial light or natural sunlight be brought to bear upon the container.—*American Druggist.*

Castor oil can be deodorized by washing with hot water, the mixture being allowed to stand long enough to permit the water to separate entirely from the oil.

To remove the objectionable odor of iodoform from the hands, as well as from the spatula and vessels which have come in contact with it, spirits of turpentine have been recommended.

To gild glass and porcelain use the following mixture: Lavender oil nine hundred parts, chloride gold one hundred parts, bismuth subnitrate five parts, and chrome green fifty parts. Apply, allow to dry, and heat in a muffle furnace.

Colors for Syrups.

The *National Druggist* recommends the following as harmless colors for syrups, etc.

Blue. Tincture of indigo; or indigo carmine, 250 grains of the latter to the ounce of water. Indigo carmine can be purchased from dealers in such article, but if you desire to prepare it yourself, proceed as follows:

Take of best indigo in lump any convenient quantity, say 30 grains. Powder in a large capsule (as it swells enormously in subsequent treatment) and dry thoroughly in the water-bath. When entirely dry, add, drop by drop, stirring constantly with a glass rod, four times its weight of fuming sulphuric acid. Cover the now swollen mass closely, and set the capsule aside for twenty-four hours. At the expiration of this time add three ounces of distilled water, a little at a time, with constant stirring, and transfer to a tall, narrow beaker, or a similar bottle, and let stand for four days, giving the liquid an occasional stirring in the meantime. Finally neutralize with sodium carbonate, and be very careful in doing it, as the least excess of alkali may cause all the indigo to separate in a doughy mass. Filter the neutralized solution and evaporate to dryness, at a low heat, in a water-bath. The resultant powder, sulp-indigotate of sodium, is the commercial indigo carmine.

Red. Cochineal syrup prepared as follows:

Cochineal in coarse powder.....	2 drs.
Potassium carbonate.....	40 grs.
Distilled water	5 fl. drs.
Alcohol.....	4 fl. drs.
Simple syrup sufficient to make.....	20 fl. ozs.

Rub up the potassium carbonate and cochineal together, add the water and alcohol, and finally add the syrup.

Carmine also makes a fine red. To prepare it, dissolve the carmine by rubbing with a few drops of ammonia water, and adding sufficient water to make one ounce for every 20 grains of carmine used.

Yellow. Tincture or infusion of Besiellò saffron. Tincture of turmeric, or of "*grains d'Avignon*" (berries of a rhamnus found in the south of France), or solution of quercitrin.

Orange. A red added to any of the yellows will produce an orange tint. Otherwise use tincture of red sandal wood, to which add sufficient ethereal extract of orlean to obtain the desired tint.

Green. Make an infusion of one part of saffron to twenty parts of soft water and to it add sufficient solution of indigo carmine until the desired shade is attained. Another green may be made as follows:

Tincture of crocus.....	8 parts.
Glycerin.....	8 parts.
Solution of indigo carmine..	3 to 5 parts.

Mix.

A green powder that is useful in many ways may be made by thoroughly mixing

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1 part of indigo carmine in powder with 100 parts of turmeric and a similar amount of milk sugar.

Finally, chlorophyll is now a commercial article and may be got through any wholesaler.

Brown. Mix liquorice juice and tincture of catechu in proportions suitable to the desired shade.

Pink. Carmine dissolved in liquor potassæ, one part to six, makes a beautiful pink, which must be cut, before using, with forty-eight parts of rose water.

Compounds of Camphors and Phenol Derivatives.

By T. W. Schaeffer, M.D., Kansas City, Mo.

I have previously drawn attention to the fact that when common or Japan camphor and crystallized carbolic acid are mixed together and heated, a colorless liquid, possessing antiseptic properties, is the result. This substance is now known under the names of carbolated camphor, phenolated camphor, and campho-phenique.

At the time when I was experimenting with phenol-camphor the thought naturally occurred to me to extend my investigations to the other camphors and phenol derivatives. I found that a large number of such compounds could be easily obtained, closely analogous to combinations formed by the union of camphor with the different phenols.

Besides the common or Japan camphor occurring in the *Laurus camphora* there are many labiate plants which contain camphors. Matricaria-camphor, for instance, is found in the oil of *Matricaria parthenium;* absinthol, in the oil of wormwood; myristicol, in the oil of nutmeg; patchouli-camphor, in the oil of patchouli (caryophyllin, in cloves, I find, is no camphor at all); and homologous with these are a number of others found in many essential oils, showing a great analogy in their composition and physical and chemical properties to common camphor. Most of these camphors readily unite with the different phenols and form characteristic chemical compounds.

The reaction between camphor and chloral, the result being a liquid, has been repeatedly observed. Acetic, benzoic, critric, salicylic, and valerianic acids, salol, alpha-and beta-naphthol, form similar liquid combinations with camphor. All these combinations, as well as the one obtained when menthol is acted upon by chloral, have been recently employed in medicine. Even trichloracetic acid, as I have observed, forms a liquid compound with menthol. Thymol, when heated with camphor, forms a transparent oily fluid. In this connection I should not fail to mention camphor-menthol, a clear liquid formed by the union of menthol with camphor. Dr. Seth Scott Bishop was the first who described it.

Menthol, like camphor, forms a large number of compounds with the different phenol derivatives. The compound formed by the union of menthol with phenol will be described later on.

Some of the di- and tri-atomic phenols unite with menthol and form characteristic compounds. Pyrogallol-menthol, for instance, is a thick, oily liquid. Resorcin-menthol is even less mobile than the one just mentioned, and gives a beautiful dark-blue color on the addition of concentrated commercial sulphuric acid. Resorcin-camphor likewise gives a blue color with the acid.

The compound of menthol with alpha-naphthol is a syrupy liquid, possessing the same properties which characterize phenol-camphor. Beta-naphthol forms with menthol a combination which is exactly like the one just mentioned. Thymol-menthol is a transparent, mobile liquid.

No doubt combinations of this kind, of menthol with the phenols of hydrocarbons allied to anthracene (alpha-anthrol, beta-anthrol, etc.), are theoretically possible. There is no end, so to speak, to these combinations. I do not propose to enter minutely into the chemistry of these compounds, for the constitution of the different camphors has not yet been fully established, especially as there is still some doubt in regard to the manner in which the benzene-nucleus is united. The benzene-nucleus is supposed to exist in the form of a para-compound in common and Borneo-camphor, and it is claimed by some chemists that they (the camphors) do not contain any bivalent ethylene combination. These phenolated camphors, I would suggest, show a great similarly to ac. tetra-hydro-beta-naphthol.

Mentho Phenol.

Mentho-phenol, as its name indicates, is obtained by adding one part of phenol to three parts of menthol, and then melting the mixture. A transparent liquid is obtained, having an aromatic odor and taste. Applied to the tongue it produces a temporary anæsthesia similar to that of cocaine, although not so lasting as the latter. It is, of course, lighter than water, having a specific gravity of 0.973. It is nearly insoluble in water and glycerin, but readily dissolves in alcohol, ether, chloroform, and most of the light and heavy oils. It dissolves iodine, iodoform, and aristol. Water of ammonia mixed with mentho-phenol changes it to a dark vinous color in a few days. It is antiseptic with strong analgesic properties. It may be used preparatory to cauterizing chancroidal sores and curetting necrotic surfaces. As a mouth-wash it may be used with advantage, two drops being mixed with an ounce of the aqueous menstruum.

Thymol-Camphor.

This substance is prepared by heating camphor and thymol together. It is a transparent, oily fluid, and behaves the same way as phenol camphor does towards its solvents. It is milder than mentho-phenol and I often use it in dermatological practice. I have used thymol-camphor in pruritus of the scrotum and in pediculosis pubis with apparently good results. Applied to the normal, healthy skin it does not occasion any irritation or redness.

Resorcin-Camphor.

This liquid is simply obtained by heating equal parts of resorcin and camphor. Its indications are the same as those of thymol camphor. It is superior to the old mercurial ointment in removing pediculi.

The Phenacetin Question.

The expectancy of those engaged in the manufacture and sale of phenacetin will be satisfied at seeing the matter solved at last, or, at all events, so far solved that one more case in the appeal courts will finally decide it. The trades marks department of the German Patent Office has allowed the claims of J. D. Reidel & Co., and other firms manufacturing phenacetin, that the word should be struck off the list of protected words. In the reports of the decision, it is noted that the Elberfelde manufactory discovered para-acetphenetidin in 1887, and brought it into commerce as "acetphenetidin" and "quininphenid," but changed the name, in October of that year, to phenacetin. In 1888, however, Reidel started the manufacture, and soon afterwards other firms followed suit, selling their product only under the name of phenacetin, without the original firm raising any objection. It may be that this was due to the inability to register words as trade marks at that time, but, as they had entered their label and name in the register, they could have issued a warning in circulars and papers. Instead of this, Baeyer's caused a fresh label to be issued bearing the words "Phenacetin-Baeyer" instead of "phenacetin," and thenceforward dealt in the former article only. The Hoechst works issued, in 1889, a label with "Phenacetin-Hoechst" on it, against which no objection was raised. In the new edition of 1890 of the German Pharmacopœia, the words "phenacetinum," "phenacetin," appeared as official, without any protest being made. Under these circumstances the claim to protection appears to disappear. It is further pointed out that, as far as the consumer is concerned, the word phenacetin is merely the name of a certain substance; under this name the body is found described in Meyer's "Konversations-Lexicon," Vol. 12, 1888, without being described as belonging to Baeyer & Co. Finally, the admission of the word into the Pharmacopœia in 1890 destroys the individual rights, making the word free. Messrs. Baeyer & Co. have the right of appeal within one month.—*British and Colonial Druggist.*

An excellent solder for glass is said to be an alloy of ninety-five parts of tin and five parts of copper.

The National Formulary.

A new and revised edition of the National Formulary has been published. A number of changes occur in this edition, many new preparations being added and others omitted. The new preparations are as follows:

Acidum Citricum Saccharatum, Acidum Tartaricum Saccharatum, Elixir Digestivum Compositum, Elixir Paraldehydi, Emulsio Olei Terebinthinæ Fortior, Extractum Rhamni Purshianæ, Fluidum Aromaticum, Glyceritum Guaiaci, Liquor Auri et Arsenii Bromidi, Liquor Magnesii Sulphatis Effervescens, Liquor Zinci et Alumini Compositus, Pulvis Acetanilidi Compositus, Pulveris Effervescentes, Sodii Bicarbonas Saccharatus, Syrupus Codeinæ, Syrupus Pini Strobi Compositus, Syrupus Rhei et Potassii Compositus, Tinctura Viburni Opuli Composita.

The following, which were in the U.S.P. of 1880, but were eliminated from that of 1890, have also been placed in the National Formulary.

Acetum Lobeliæ, Acetum Sanguinariæ, Amylum Iodatum, Ceratum Extracti Cantharidis, Ceratum Sabinæ, Charta Cantharidis, Emplastrum Ammoniaci, Emplastrum Asafœtidæ, Emphastrum Galbani, Emplastrum Picis Canadensis, Extractum Lactucarii Fluidium, Extractum Malti, Extractum Mezerei Fluidium, Infusum Brayeræ, Linimentum Cantharidis; Linimentum Plumbi Subacetatis, Liquor Gutta Perchæ, Liquor Pepsini, Mixtura Magnesiæ et Asafœtidæ, Mucilago Cydonii, Pilulæ Ferri Compositæ, Pilulæ Galbani Compositæ, Spiritus Odoratus, Syrupus Ferri Bromidi, Tinctura Conii, Tinctura Ignatia, Trochisci Magnesia, Trochisci Sodii Santoninatis. Unguentum Acidi Gallici, Unguentum Mezerei, Unguentum Sulphuris Alkalinum, Vinum Album Fortius, Vinum Aloes, Vinum Rhei.

In the following preparations the titles have been changed.

Aqua Hamamelidis to Aqua Hamamelidis Spirituosa.

Liquor Sodii Citro-Tartratis to Liquor Sodii Citro-Tartratis Effervescens.

Mixtura Chloroformi et Opii to Mixtura Chloroformi et Cannabis Indicæ Compositæ.

Ferri et Quininæ Citrus Effervescens to Ferri Phosphas Effervescens.

Potassii Bromidum Effervescens to Potassii Bromidum Effervescens Cum Caffeina.

Sal Carolinum Factitum Effervescens, Sal Kissingense Factitum Effervescens, Sal Vichyanum Factitum Effervescens, and Sal Vichyanum Factitum Effervescens Cum Lithio are each preceded by "Pulvis."

Pulvis Iodoformi Diluus changed to Pulvis Iodoformi Compositus, Syrupus Ferri Arsenatis to Syrupus Ferri Arsenatis.

A paint remover is made by forming an emulsion of two parts of ammonia with one part of turpentine.

Spraying of Fruit Trees.

The bulletins issued by the Department of Agriculture and the "cuts" which they contain illustrative of this subject are such as should convince every fruit-grower of the necessity of giving careful attention to the spraying of fruit trees. The department has shown conclusively that both in quality and quantity our fruit crop can be greatly helped, and "grape mildew" and "apple scab" kept at bay, by the judicious use of a weak spraying liquid.

The time was when this was difficult of preparation, but the suggestions of the department have led to the adoption by manufacturers of needed preparations, so that now the liquid can be made ready without either inconvenience or risk. All that is required is to take half a barrel of cold water, add a quart of liquid ammonia and thereafter a 3 oz. packet of carbonate of copper. These articles are advertised in our columns, and can be had anywhere in packets ready for use, so that there is no inconvenience in having the spraying liquid prepared.

We hope that every fruit-grower who has access to this paper, and also those who number the fruit-growers amongst their customers, will see it to be their interest to give attention to the instructions of the department in this matter, as we feel quite sure that the result will be very much to their advantage and the advantage of the country.

Smuggling Phenacetine.

Beneath the cleverly-fitted false bottom of a trunk which a Chinaman presented for examination to the local United States customs officers at the Bonaventure station, Montreal, recently, was found some thirty-six pounds of phenacetine. Mr. McGuire called on Mr. Twohey, when he made the discovery, and to that gentleman John Chinaman stated that it was Chinese flour, and that he wanted the trunk shipped to New York. This was done in the usual way, in the hope of catching the shipper, but the average Celestial is too smooth to be caught in that way and he did not accompany his property, therefore the United States Treasury agent at Plattsburg did not make the capture. Subsequently it was ascertained that three well-known Chinamen were concerned in the matter.

Insecticides.

For the convenience of numerous inquirers the standard formulas of insecticides and fungicides, from the latest authorities, are here given in a group, with the suggestion that they be preserved for reference:

BORDEAUX MIXTURE.

Copper sulphate	6 pounds
Quicklime	4 pounds
Water	40 gallons

Dissolve the copper sulphate by putting it in a bag of coarse cloth and hanging this in a vessel holding at least four gallons, so that it is just covered by the water. Use an earthen or wooden vessel. Slake the lime in an equal amount of water; then mix the two, and add enough water to make forty gallons. It is then ready for immediate use. For rots, molds, mildews, and all fungous diseases.

AMMONIACAL COPPER CARBONATE.

Copper carbonate	1 ounce
Ammonia	Enough to dissolve the copper
Water	9 gallons

The copper carbonate is best dissolved in large bottles, where it will keep indefinitely, and it should be diluted with water as required. For same purpose as Bordeaux mixture.

COPPER SULPHATE SOLUTION.

Copper sulphate	1 pound
Water	15 gallons

Dissolve the copper sulphate in the water, when it is ready for use. This should never be applied to foliage, but must be used before the buds break. For peaches and nectarines use twenty-five gallons of water. For fungous diseases.

PARIS GREEN.

Paris green	1 pound
Water	250 gallons

If this mixture is to be used upon peach trees, one pound of quicklime should be added. Repeated applications will injure most foliage unless lime is added. Paris green and Bordeaux can be applied together with perfect safety. The action of neither is weakened, and the Paris green loses all caustic properties. For insects which chew.

LONDON PURPLE.

London purple	1 pound
Water	250 gallons

Same proportion as Paris green, but as it is more caustic it should be applied with the lime or with the Bordeaux mixture. Do not use it on peach or plum trees. For insects which chew.

HELLEBORE.

Fresh white hellebore	1 ounce
Water	3 gallons

Apply when thoroughly mixed. For insects which chew.

KEROSENE EMULSION.

Hard soap	½ pound
Boiling water	1 gallon
Kerosene	2 "

Dissolve the soap in the water, add the kerosene, and churn with a pump for five to ten minutes. Dilute ten to fifteen times before applying. For insects which suck, cabbage-worms, and all insects which have soft bodies.

EXPERIMENTAL CHEMISTRY. — Old lady (to druggist): "Are you quite sure this is carbonate of soda, not arsenic?" Chemist: "Quite, ma'am. Try it and judge for yourself."—*The Great Divide.*

The Chemical Analysis of Water.*

By Herbert E. Davies, M.A., B.Sc., F.I.C.

Within the memory of people still living water analysis was a thing unheard of. If a water supply were reasonably clear, sparkling, and free from bad taste, people asked for nothing more, and those who objected to a well sunk directly beneath a crowded churchyard or surrounded by cesspools were regarded as eccentric faddists. Cholera and other epidemics, which swept away thousands of victims, were regarded as visitations of Providence, to be received in a spirit of humility, and it took a long time to persuade the conservative English mind that a bad water supply and various diseases are cause and effect. It was only after years of persistent teaching of the necessity for pure water that the lesson was learned, and much of the credit for the vastly improved state of things is due to the many eminent chemists who have devoted their best energies to devising means for distinguishing between good waters and bad. Water analysis is a peculiarly English branch of science. All the standard methods have been devised by English chemists, such as Wanklyn, Frankland, Armstrong, Clark, Tidy, and others, and it is in the English-speaking countries that water analysis is chiefly practised. It is only necessary to consult a Continental work on hygiene to see how very much behind us they are in this respect, and how small a part water analysis plays. The result is seen in the cholera outbreaks at Hamburg, where the water supply was a disgrace to a civilized community.

In the early days of water analysis the examination was confined almost exclusively to the mineral constituents, and according to the amount of the various salts found some rough classification of waters could be made. And even now, if we are making an analysis for manufacturers, it is the mineral salts which determine the suitability of the water, because, if a water is to be used, for example, in a boiler, the presence of organic impurity does not matter, whereas an excess of lime salts will be very injurious.

FIRST GREAT ADVANCE IN WATER ANALYSIS.

The first great advance in water analysis occurred about 1867, when Wanklyn on the one hand, and Frankland and Armstrong on the other, devised their respective processes for estimating the amount of organic matter in water. It is obvious that the suitability of a water from a hygienic point of view can only be determined by estimating in some way the amount of organic matter in the water, because, whether we regard zymotic diseases as caused by micro-organisms or by some poisonous product of living matter, the cause of the disease will be present in the water as organic matter.

A most deplorable personal quarrel arose between the originators of the two methods. Unfortunately, their insistence upon their particular method only being necessary to get all the information requisite to judge of a water caused very bad blunders, and to this is due much of the contemptuous reference to mere chemical analysis and its inability to detect pollution.

To see how far we have advanced from the day when a chemist would confidently pass judgment on a water after determining the free and albuminoid ammonia, I propose to point out the methods adopted nowadays by a competent chemist who is called upon to decide about the purity or otherwise of a water. The whole of the methods are not employed in every case—people cannot expect to get more than they will pay for, but if a complete examination be made it would be on something like the following lines :

HOW SAMPLES SHOULD BE TAKEN.

In the first place, it is an advantage to have the sample taken by a person who knows what he is about. Every analyst has water sent to him at times in dirty wine bottles or stone jars—which may or may not be clean—sometimes closed with a rotten old cork, or even with a plug of paper. If the cork be too small, it is easy to remedy that, in some people's opinion, by wrapping a bit of rag round it, and so on. The first considerations should always be the scrupulous cleanliness of the vessel in which the water is to be carried, and obtaining a fair representative sample of the supply in question, avoiding accidental impurities. It is important also to notice the source of the water ; if a well, whether it be shallow or deep, whether there be any possible source of pollution near at hand, and so on. It is curious to note how very reluctant people are, as a rule, to give any information at all about a sample. They seem to think that the analyst ought to find it out for himself, and that they are being in a manner defrauded if they give him any assistance.

PHYSICAL PROPERTIES.

When the sample is taken it is as well to proceed with the analysis without much delay, because, in warm weather especially, the organic matter is liable to undergo alteration. In the general examination of water we deal first with the color, as determined by viewing it in a 2-foot tube against a white background. Generally speaking, there is a distinct brown color with a decided green tinge. This is due to vegetable matter dissolved in the water, and when the supply is from a peaty soil, what is known as "upland surface water," the color may be very deep indeed, as peat gives much soluble matter to the water. The London water examiners have a graduated scale of tints, but in an ordinary way it is sufficient to note that there is a light or deep tint, as the case may be. Clearness or turbidity is noted as determining the efficient filtration of the water. When water contains much sewage there is a peculiar opalescent appearance, which is very characteristic. The taste and smell are noted, though this does not, as a rule, give much information, because badly polluted well water is often very palatable. However, if there should be any unpleasant smell, it may be taken as almost certain that the water is polluted. It is best to warm the water slightly in an open dish to detect any smell there may be.

THE REACTION.

It should be noted whether the water is acid or alkaline. This is best observed with methyl orange. In the great majority of cases water is faintly alkaline owing to the dissolved carbonate of lime. An acid reaction generally points to pollution with manufacturing waste.

MICRO-ORGANISMS.

In the general examination may be included the microscopical examination of the residue. This should never be neglected, because it often affords most valuable information. The water is allowed to settle for some hours, and then is carefully decanted or siphoned off until about 50 c.cm. are left. This is then well shaken round in the bottle, and poured into a conical glass, and again allowed to settle. A drop is then taken with a pipette from the bottom and examined. As there may be anything from micrococci to small fishes, a wide experience in microscopical work is required to enable the observer to come to a right conclusion from what he sees. There are certain organisms which are peculiarly characteristic of sewage pollution, and others, again, which are only found in pure spring waters.

THE INORGANIC CONSTITUENTS.

We now come to the real chemical analysis of the water, and here it may be noted that results of an analysis are expressed in grains per gallon and parts per 100,000—a difference which is a most regrettable difficulty to analysts and their clients, as much confusion arises owing to people getting different sets of figures.

The total dissolved matter is estimated by evaporating a known quantity of the water to dryness, and weighing the residue. At one time it was thought that the amount of organic matter could be determined by igniting this residue and finding how much weight was lost by the ignition, but during evaporation we drive off some of it, and combined water nitrites, nitrates, and carbonates are decomposed, and some chlorides are volatilized, so that it is quite fallacious to consider the loss as organic matter. The amount of dissolved matter varies between 10 gr. to the gallon and 150. It is impossible to say that any particular number renders a water fit for use or the reverse, because a water may contain a large amount of dissolved salts and yet be very pure organically, and *vice versa*. This consideration applies to most of the

* Abstract of a paper communicated to the Liverpool Chemists' Association.

constituents. In many popular books on water analysis we see tables divided in three columns giving the amounts of the various constituents which render a water safe, usable, and dangerous. Such tables are worthless and misleading.

THE ORGANIC MATTER.

We have now to consider the determination of the organic matter. There are three methods in use—namely, Wanklyn's ammonia process, Frankland's combustion process, and Tidy's permanganate process. The first mentioned is the most generally employed. In it half a litre of the water is placed in a clean retort and distilled with carbonate of soda, and the ammonia in the distillate estimated with Nessler's solution. Alkaline permanganate is then added, and a further quantity of ammonia distils over. This is the albuminoid ammonia. The first lot of ammonia is called free or saline ammonia. It is derived from the ammonium salts in the water and any urea there may be. The object of adding carbonate of soda is to liberate ammonia from the ammonium salts, and it is a curious fact that many books on water analysis omit all mention of it Another mistake, which one writer copies from another until it has become accepted as perfectly true, is that if the first 50 c.cm. of the distillate be tested the amount of ammonia found is two-thirds of the whole quantity of free ammonia. I have found this statement to be altogether untrue. Free ammonia in a water is derived from organic matter, and is a measure of the amount of organic matter which has undergone change.

If sewage or other matter of a like kind gets into water the ordinary putrefactive bacteria decompose the organic matter, with formation of ammonia, and the nitrifying organisms carry on the change further, giving rise to nitrous and nitric acid. Therefore much free ammonia is very strong evidence of sewage contamination. The albuminoid ammonia is derived from the unchanged organic matter. It has been found that if organic matter, such as white of egg, be boiled with a strongly alkaline solution of potass. permanganate, a great part of the nitrogen in the organic matter is converted into ammonia. Therefore free ammonia is a measure of the decomposed organic matter in the water, and albuminoid ammonia is a measure of the unchanged organic matter. Two objections will be at once raised. First, how can you tell whether the organic matter is harmless vegetable matter or dangerous animal matter? Well, it is a curious fact that vegetable matter gives rise to very little free ammonia, and a practised hand can also distinguish by the manner in which the albuminoid ammonia comes off. It comes off much more slowly and more regularly. But the most important means of distinguishing them is this, that animal matter is always accompanied by chlorides and nitrates, whereas vegetable matter is not. The second objection is that, although we can tell how much ammonia there is, we do not, therefore, know how much organic matter there is. The answer to this is that it does not matter in the least. Long experience has shown that, other things being equal, a certain amount of free and albumnoid ammonia respectively denote a pure water, while beyond certain limits there has been pollution; and if a water has been polluted by sewage it really does not matter much whether there is an ounce of it or a pound of it in a gallon. The water is equally unfit for use in either case.

FRANKLAND'S METHOD LOSING GROUND.

Frankland's method of estimating the organic matter is supported by influential analysts, but, all the same, its days are numbered. It requires elaborate and delicate apparatus, much time and great skill; but the fatal objection to it is that there are unavoidable sources of error in it which make it quite unreliable. Proof of this has been given lately. It has been shown that when the most eminent chemists analyze the same water their results may differ by more than 100 per cent., and quite a different decision be arrived at. The method, stated briefly, consists in evaporating a large volume of the water to dryness and then making an organic combustion of the residue with copper oxide. From the amount of CO_2 and N found it is supposed that the amount of organic matter can be calculated, and from their relative amounts whether it is animal or vegetable. It would take too long to explain the various sources of error; it is sufficient to say that nothing but Frankland's great influence and official position keep the process alive. I have never heard of its being adopted outside England, whereas Wanklyn's process is used all over the world.

Tidy's permanganate process consists simply in measuring the amount of permanganate decomposed by the water: but as other substances besides organic matter decompose permanganate, much reliance cannot be placed upon the results obtained.

Closely related to organic matter are chlorides and nitrates. Nitrates are derived from the oxidation of organic matter by means of the nitrifying organisms which swarm in the upper layers of the soil. Therefore, if we find much nitrate in a water, it is certain proof that it has been polluted with organic matter, and, moreover, with animal matter. Until recently it was thought that if the organic matter had been converted into nitrates it was evidence that the water had become so completely oxidized as to be safe, but research has shown that under favorable conditions nitrification may go on so rapidly that, while nearly all the organic matter is converted, disease germs still retain their vitality.

THE IMPORTANCE OF CHLORIDE DETERMINATION.

The determination of the amount of chlorine in the form of chlorides is a most valuable guide. Urine and sewage generally contain a large quantity of sodium chloride, and no treatment to which the sewage can be submitted will remove it; therefore the presence of a large quantity of chlorides in a water is a most decisive proof of sewage pollution. Of course, it must be remembered that in certain cases —*e.g.*, near the seashore or in places like the Cheshire salt district—there will naturally be a large quantity of chlorides in the water; but whenever we find more chlorides than the normal amount, accompanied by nitrates, and high free and albumnoid ammonia, we can say with certainty that the water has been polluted with sewage.—*British and Colonial Druggist.*

Maximum Doses of Some of the Newer Remedies.

Compiled by A. Schreiber, of Neukirch.

	DOSE (GM.) SINGLE.	DAILY.
Acetal	8.0	16.0
Acid, Creosotinic	0.5	5.0
Cubebic	1.0	2.0
Diiodosalicylic	1.0	3.0
Dithiosalicylic	1.0	1.5
Hydrobromic	0.5	2.0
Adonidin	0.005	0.03
Agathin	0.5	1.0
Alphol	0.5	2.0
Analgen	1.0	4.0
Anemonin	0.03	0.1
Antinervin	0.5	2.0
Antisepsin	0.05	0.2
Antispasmin	0.05	0.2
Antithermin	0.2	0.8
Apocodeine	0.02	0.1
Arbutin	1.0	4.0
Asaprol	1.0	4.0
Aspidospermine Hydrochlor	0.003	0.006
Baptisin	0.03	0.1
Benzanilide	0.5	2.0
Benzonaphthol	0.5	2.0
Benzosol	0 75	3.0
Betol	0.5	2.0
Boldol	0.25	1.0
Caffeine-chloral	0.4	2.0
Carniferrin	0.5	2.0
Chloral Hydrocyanate	0.02	0.1
Chloralimide	1.0	4.0
Chloralose	0.75	3.0
Cornutin	0.005	0.02
Creasote Carbonate	1.0	6.0
Cresaloi	0.5	2.0
Daturine	0.001	0.003
Diuretin	0.5	4.0
Ergotinine	0.001	0.015
Ethoxycaffeine	0.25	1.0
Euphorin	0.5	2.0
Exalgin	0.02	0.1
Extr. Adonidis vern., fl	0.5	2.0
Boldo, fl	0.5	2.0
Cacti Grandiflor, fl	0.75	3.0
Coto, fl	0.5	2.0
Gelsemium, fl	0.2	0.6
Ferratin	0.5	2.0
Formanilid	0.25	1.0
Gaduol	0.2	0.8
Guaiacol Salol	1.0	5.0
Guaiacol Carbonate	1.0	6.0

	DOSE (GM.) SINGLE.	DAILY.
Helenin	0.3	1.0
Helleboreine	0.03	0.12
Hemalbumin	1.0	5.0
Hemogallol	1.5	4.0
Hemol	0.5	1.5
Hydracetin	0.1	0.4
Hydrargyr. Thymol. Acet.	0.005	0.02
Hydrastinine	0.05	0.2
Hydroquinone	0.5	2.0
Hypnal	1.0	4.0
Hypnone	0.05	0.2
Iridin	0.3	1.0
Iodocaffeine	0.5	2.0
Iodotheobromine	0.5	2.0
Iodopyrine	1.0	4.0
Lactophenine	1.0	5.0
Lupetazine	1.0	4.0
Lycetol	0.5	2.0
Lysidin	1.0	5.0
Malakin	1.0	6.0
Methacetin	0.5	2.0
Methylacetanilid	0.3	1.5
Methylal	1.0	5.0
Migranin	0.75	3.0
Neurodin	1.0	4.0
Nickel Bromide	0.5	1.5
Nicotine	0.001	0.005
Orexine	0.4	1.5
Hydrochlor	0.5	2.0
Paracotoine	0.1	0.3
Paraform	3.0	9.0
Pental	1.0	4.0
Phenocoll Hydrochlor	0.5	2.0
Piperazine	1.0	4.0
Podophyllotoxin	0.02	0.06
Pyridine	0.05	0.3
Salacetol	1.0	5.0
Salicylamide	0.15	0.5
Saligenin	3.5	9.0
Salipyrine	1.0	4.0
Salacoll	1.0	5.0
Salophen	1.0	4.0
Somnal	1.0	4.0
Spermine	1.0	4.0
Styracol	1.0	5.0
Symphorol	1.0	4.0
Tannigen	0.5	2.0
Terpinol	0.5	1.0
Tetronal	1.0	4.0
Thermodin	0.5	2.0
Thyroidin	0.05	0.5
Tinct. Naregamia Alata	1.0	4.0
Trional	1.0	5.0
Tussol	0.5	2.0
Uralium	2.0	8.0
Urethan	1.0	4.0
Urecidin	1.0	5.0
Uropherin	1.0	5.0
Zinc Bromide	0.25	0.5
Salicylate	0.1	0.5

—Merck's Report.

To disinfect the hands it is recommended that they be thoroughly brushed with a mixture of green soap and alcohol for not less than five minutes, then again in alcohol for the same length of time, and finally in an alcohol solution of corrosive sublimate one to one thousand.

To mix balsam Peru with oils, first mix with a little castor oil, after which any other fixed oil easily combines.

A Silvering Paste for Metals.

A handy method of coating copper, gun-metal, brass, German silver, and even iron, with a thin but firmly adherent brilliant film of pure silver, must often prove very serviceable. Small portions of the ordinary plated articles in everyday use "wear" very quickly, showing the base alloy beneath along the edges and more exposed portions, thus not only looking shabby prematurely, but being in some cases even dangerous in use if left in contact for a few minutes with acid or other particularly solvent fluids. The great secret of successful plating or re-plating consists in taking care that the surfaces to be coated with silver are, in all respects, perfectly clean, and especially that they are free from the least trace of oleaginous matter, and from oxide or tarnish.

A good way of ensuring this is to clean the articles with whiting in the usual way, and then to pour over them a hot solution of caustic potassa of soda 10 per cent., rinsing them thoroughly with boiling water and drying very quickly, unless we happen to require them for immediate use, when it is just as well to keep them under water for the short time until the silvering process is actually compressed. In the case of very old plated goods having rather rough surfaces, it is as well to brush them over first with a 7 per cent. solution of cyanide of potassium, and then with hot water only. The articles having been thoroughly cleansed may be wiped dry, or nearly so, and a little of the following composition rubbed on with a soft but short-haired brush, or if the surface be a large plain one, without embossed or engraved work in it, a pad of cotton-wool covered with chamois leather; this has to be gently twirled round until the desired effect is produced, when a good washing with warm water, rapid drying, and a final rub up with a plate brush, or leather, finishes the operation. The silvering composition is thus prepared:

Creta præcip.	120 gr.
Argent nit	40 gr.
Potass chlorid.	28 gr.
" bitartrate	114 gr.
Sodium chlor.	q.s.
Collodium flexile	q.s.
Aqua dest	q.s.

Dissolve the nitrate of silver in about three ounces of water and add thereto a sufficiency of chloride of sodium previously dissolved in water to throw down the whole of the silver as chloride. Well wash the precipitate, and allow it to settle, pour off the supernatant fluid, wash the precipitate two or three times and drain the chloride of silver as much as possible, performing all these operations in a dark place, or rather, at least, in a room lighted by an "orange" window or ruby lamp; stir into the magma first the chloride of potassium and then the cream of tartar. Fifty grains of pure dry Rochelle salt may be advantageously substituted for half the quantity of bitartarate of potassium here named, both dry and in fine powder. When the preceding ingredients have been thoroughly incorporated the creta may be mixed in, a little water being added if necessary. The composition may now be kept, if so preferred, in a pasty condition, and stored in small "non-actinic" bottles or jars for use; in this form the addition of a little pure honey is advantageous as tending to retain the pasty consistence and at the same time to enhance the "reducing" powers of the composition.

For general purposes, however, it is perhaps better to form the mixture into small cakes or tablets of convenient size, drying them carefully at a very low temperature, and giving them one or two coatings of flexible collodion by painting them all over with that fluid made rather thinner than usual by the addition of a little ether.—*Magazine of Pharmacy.*

Pastes and Mucilages.

By W. G. Scott.

LABEL GUM—FOR PAPER TO GLASS.

(*a*) 4 oz. pulverized gum arabic.
6 fl. oz. boiling water.
(*b*) 2 fl. oz. glycerine.
Dissolve (*a*), then add (*b*).

NEW "TIN CAN" LABEL PASTE—FOR PAINT AND VARNISH CANS.

(*a*) 2 lbs. brown sugar.
16 fl. oz. boiling water.
(*b*) ½ oz. French gelatine.
4 fl. oz. water.
(*c*) 12 oz. corn starch.
Beat up with
12 fl. oz. cold water,
and pour the batter into
32 fl. oz. boiling water.

Continue boiling (*c*), if necessary, until the paste is translucent. Dissolve (*a*) and (*b*) separately, and then mix with (*c*). Paste for tin should not be too thin, and the tin should be free from grease. New tin generally has an oily or greasy surface, due to the tallow or oil used in the plating process. The grease may be removed with an alkali or with benzine, but in a factory where much labelling is done it is better to slightly roughen the surface of the tin where the label is to be placed with a piece of fine sandpaper, No. 0. This paste is very adhesive, and labels pasted with it will adhere nicely, even in a damp place. The sugar in its composition also renders it proof against cracking when exposed to a dry atmosphere.

PAPER PASTE—TO ADHERE TO METAL.

(*a*) 1 oz. pulverized gum tragacanth.
4 oz. pulverized gum arabic.
20 fl. oz. cold water.
(*b*) 4 fl. oz. glycerine.
80 grains thymol.
(*c*) 12 fl. oz. boiling water.

MUCIS GUM—OR PASTE FOR TISSUE PAPER.

(*a*) 2 oz. pulverized gum arabic.
½ oz. white sugar.
3 fl. oz. boiling water.

(*b*) 1½ oz. common laundry starch.
3 fl. oz. cold water.
Make into a batter and pour into
32 fl. oz. boiling water.

Mix (*a*) with (*b*), and keep in a wide-mouthed bottle.

PERFECT PAPER PASTE—FOR PAPER ONLY.

(*a*) 1 oz. powdered gum tragacanth.
8 fl. oz. boiling water.
(*b*) 1 oz. pulverized gum arabic.
½ oz. salicylic acid.
2 fl. oz. boiling water.
(*c*) 2 oz. wheat flour.
½ oz. white dextrine.
2 fl. oz. cold water.
Make into a batter and pour into
12 fl. oz. boiling water.

Mix (*a*) with (*b*), then add (*c*); finally add ½ oz. glycerine, to which has been added 8 drops oil of lavender. This is a good preparation, but is rather complicated, and too much work to make up.

PARCHMENT PASTE—FOR HEAVY PAPER.

(*a*) 2 oz. pulverized rice.
12 fl. oz. boiling water.
(*b*) 2 oz. pulverized gum arabic.
4 fl. oz. boiling water.
(*c*) 1 oz. white sugar.
16 grains salicylic acid.
1 fl. oz. boiling water.

Boil (*a*) for about half an hour, let cool somewhat, strain, and then stir in (*b*) and (*c*). This paste is from an old English recipe, and is a nice article; but, like the preceding, it is too much trouble taken for the result obtained.

TRAGACANTH MUCILAGE—FOR PAPER.

(*a*) 1 oz. pulverized tragacanth.
4 fl. oz. glycerine.
(*b*) 16 fl. oz. boiling water.

Macerate the tragacanth with the glycerine in a glass mortar, then stir the paste into the boiling water. This makes a very thick mucilage; 32 fl. oz. of boiling water gives a medium, and 64 fl. oz. a thin paste. Tragacanth paste works very smooth, but is not very adhesive.

HOUSEHOLD MUCILAGE—FOR PAPER, ETC.

(*a*) 3 oz. pulverized gum arabic.
1 oz. white sugar.
5 fl. oz. boiling water.
(*b*) 1 fl. oz. white wine vinegar.
(or ¼ oz. acetic acid with ¾ oz. water.)

Mix (*a*) with (*b*). The acid is added to the gum in order to make it take hold of metal.

DEXTRINE MUCILAGE—FOR PAPER, ETC.

4 oz. yellow dextrine.
6 fl. oz soft or distilled water.

Dissolve cold, as heat destroys the adhesive properties of dextrine. If a more fluid gum is desired, use 8 fl. oz of water.

DEXTRO-ACACIA MUCILAGE—FOR PAPER PARCHMENT, ETC.

(*a*) 4 oz. yellow dextrine.
8 fl. oz. cold water.
(*b*) 4 oz. pulverized gum arabic.
8 fl. oz. boiling water.
(*c*) 2 fl. oz. glycerine.
4 drops oil of cinnamon.

Dissolve each separately, then mix. This is a good article, and easy to prepare. It does not keep as well, however, as the borax mucilage, which is unalterable.

ANTISEPTIC PASTE (POISON)—FOR ORGANIC SPECIMENS.

(*a*) 16 oz. wheat flour.
Beat to a batter with
16 fl. oz. cold water,
then pour into
32 fl. oz. boiling water.
(*b*) 2 oz. pulverized gum arabic.
Dissolve in
4 fl. oz. boiling water.
(*c*) 2 oz. pulverized alum.
Dissolve in
4 fl. oz. boiling water.
(*d*) 2 oz. acetate of lead.
Dissolve in
4 fl. oz. boiling water.
(*e*) 10 grains corrosive sublimate.

Mix (*a*) and (*b*) while hot, and continue to simmer; the meanwhile stir in (*c*), and mix thoroughly, then add (*d*). Stir briskly, and empty in the dry corrosive sublimate. *This paste is very poisonous.* It is used for anatomical work, and for pasting organic tissue, labels on skeletons, etc.

GLUE PASTE—FOR CLOTH BOOKS, ETC.

(*a*) 4 oz. white glue.
8 fl. oz. cold water.

Soak glue four hours in the cold water, then dissolve in a glue pot.

(*b*) 4 oz. corn starch.
8 fl. oz. cold water.
Mix, and pour into
16 fl. oz. boiling water.

Mix (*a*) with (*b*), and gently heat for about ten minutes. If wanted elastic, add 4 fl. oz. glycerine.

THYMOL DEXTRINE—FOR LABELS ON GLASS.

8 oz. yellow dextrine.
10 grains thymol.
Dissolve in
18 fl. oz. cold or lukewarm water.

Boiling water should not be used with dextrine, as it impairs its adhesiveness.—*The Western Painter.*

Syrup hydriodic acid and peroxide hydrogen are incompatible, the former being decomposed by the latter, with a formation of free iodine, which is afterwards oxidized to iodic acid.

Cassia oil adulterated with resin and petroleum has made its appearance in the market.

The Examination of Creosote Capsules.

The necessity of examining the contents of the various ready-made capsules on the market has frequently been dwelt upon, and such examination very frequently shows very wide differences between the contents of the capsules and the statements as to the contents which appear on the labels. The following method of examining capsules containing creosote, which was recently suggested by Sapin, will, therefore, prove of considerable interest:

Macerate fifty of the capsules of examination for several hours in barely sufficient cold water to cover them, and then heat carefully until the gelatine is dissolved. On cooling there will be two layers, the upper being oily and the lower gelatinous. Dissolve the oily layer in 25 c.cm. of ether; again liquefy the gelatinous mass by careful heating and allow it to cool, when the last traces of the oily creosote solution will rise to the surface, and may be removed by a second portion of ether. By mixing the two etheral solutions, evaporating and weighing the residue, the weight of the creosote present in the capsule and of the oil will be obtained. To separate these two, shake the residue twice with 10 c.cm. of alcohol (94 per cent.), which dissolves the creosote, while the oil remains behind. After pouring off the alcohol, heat the oil until the last traces of alcohol are driven off, and weigh it. The difference between the figures thus given and the total weight of the residue after the evaporation of the ether will give the quantity of the creosote present.

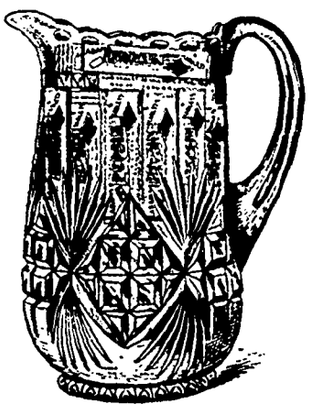
This method is available for analysis of creosote solutions in oil, such as cod-liver oil, almond oil, peanut oil, and olive oil. The quantity of creosote found may occasionally be a little in excess of the actual amount present, on account of the slight solubility in alcohol of some of the oils used.—*Pro. and Col. Importer.*

Migranin contains a certain proportion of antipyrin, and is for that reason physically incompatible with salol. The mixture of the two deliquesces.

TO SUCCESSFULLY TREAT BLACK EYE.—There have been recommended many applications, but an exchange informs us that there is nothing to compare with the tincture of a strong infusion of capsicum mixed with an equal bulk of mucilage and a *few drops of glycerine.* Paint with a camel's hair pencil and repeat the operation once or twice.

To write on glass two solutions are prepared: One a solution of 35 grammes of sodium fluoride and 7 grammes of potassium sulphate in 500 c.c. of water, and the other a solution of 14 grammes of zinc chloride in 500 c.c. of hydrochloric acid. When wanted, equal parts of the two are mixed and painted on glass by means of a camel's hair pencil.—*P.J.E.*

A Clear Crystal Glass



Capacity : One-Half Gallon.

PITCHER FREE

Containing the equivalent of five boxes of Pepsin Tutti Frutti. It is also packed with an assortment of half Pepsin and half regular Tutti Frutti. Order early from your wholesaler. Send postal card for new advertising signs for your window.

Adams & Sons Co.,
11 and 13 Jarvis Street,
TORONTO.

LIVE DRUGGISTS

KEEP ON HAND

Dr. Campbell's Safe Arsenic Complexion Wafers...

AND

FOULD'S MEDICATED ARSENIC COMPLEXION SOAP

THE ONLY REAL BEAUTIFIER OF THE COMPLEXION, SKIN, AND FORM

H. B. FOULD
SOLE PROPRIETOR
214 Sixth Ave., NEW YORK.

The LYMAN BROS. & CO.
CANADIAN AGENTS
71 Front St. E., Toronto, Ont.

Correspondence.

The Editor does not hold himself responsible for the opinions of correspondents.
Correspondents must in all cases send name and address, not necessarily for publication.

Editor CANADIAN DRUGGIST :

SIR,—Can you give a good method for accurately estimating the amount of tannic acid contained in different specimens of hemlock bark?

DRUGGIST.

Editor CANADIAN DRUGGIST :

SIR,—Having noticed lately several methods recommended for the restoration of "crocked emulsions," it may not be out of place to mention a very simple one which I used some years ago, and which proved so satisfactory that as long as I used the pestle and mortar for producing emulsification I took but little precaution to guard against the crocking. Press the crocked emulsion through a cotton cloth made into a bag ; it will then immediately mix on stirring.

I use a modification of such an arrangement for the manufacture of emulsions on a comparatively large scale, which is an almost incredible saving of time and labor as compared with the old method.

H. H. GAETZ.

Red Deer, May 26, 1896.

Editor CANADIAN DRUGGIST :

SIR,—A paragraph is going the rounds of the medical journals, giving a formula for making Palatable Castor Oil.

This formula is patented as per following list of patents :

No. 410,940, dated September 10th, 1889.
No. 470,715, dated March 15th, 1892.
No. 470,714, dated March 15th, 1892.
No. 524,513 dated August 14th, 1894.
No. 524,514, dated August 14th, 1894.

If druggists are induced to prepare this article themselves, it will lead to a multitude of lawsuits like those instituted in the "Drive well" case.

Some scheming lawyer would like to take up this case for one-half the profits, and I think journals should warn the druggists so that they may not be caught in a trap.

A. J. WHITE.

New York, Jan. 4th.

Aristol is highly recommended in the treatment of burns. The parts should be dressed with the powder and then covered with absorbent cotton.

To destroy cholera germs a solution of citric acid in water, four parts in ten thousand is recommended.

A DIFFICULT REMEDY.—The sufferer: "Do you think it would relieve my toothache if I should hold a little liquor in my mouth?" His wife: "It might, if you could do it."—*Life.*

Books for Druggists.

Any of the following books will by mailed on receipt of the priced named :

British Pharmacopœia	$2 00
British Pharmacopœia Addendum	35
U.S. Dispensatory (in cloth)	7 50
U.S. Dispensatory (in leather)	8 25
U.S. Dispensatory (in leather) with index	8 50
National Dispensatory	8 50
National Formulary	1 00
Atfield's Chemistry	3 25
Gray's Botany, first lessons	1 40
Maisch's Materia Medica	3 50
Martindale's Extra Pharmacopœia	2 00
Pereira's Prescriptions	75
Parrish's Pharmacy	5 25
Squire's Companion	3 25
Remington's Pharmacy	6 00
Practical Dispensing	50
Minor Ailments	1 50
Heebner's Practical Synopsis of B.P.	1 00
Heebner's Manual of Pharmacy, etc.	2 00
Manual of Formulæ	1 50
Diseases of Cats and Dogs	75
Practical Dentistry	50
Harrop's Monograph on Fluid Extracts	2 00
Harrop's Monograph on Flavoring Extracts	2 00
Quiz Compend on Pharmacy, Stewart	1 00
Caspan's Treatise on Pharmacy	4 50
Coblent's Handbook of Pharmacy	3 50
Druggists' Price Books	2 00
Standard Dictionary, Funk & Wagnalls, single volume	$12 to 18 00
Standard Dictionary, in two volumes, according to binding	$18 to 22 00
Art of Compounding, by Scoville	2 50
Bartley's Medical Chemistry	3 00
How to do Business (McLean)	75
Sayre's Organic Materia Medica and Pharmacognosy	4 50
Practical Perfumery	50

CANADIAN DRUGGIST, Toronto.

A Chemist's Exhibition.

The second of the exhibitions in London, England, organized in connection with the *British and Colonial Druggist*, will be held from the 24th to the 28th August next, at the National Skating Palace, Argyll street, W.

For the exhibition of 1895 a larger attendance of the members of the trade was secured than had ever before assembled on any occasion. In four days it was visited by considerably over a thousand chemists, by large numbers of London and provincial wholesalers and manufacturers connected with pharmacy, by hundreds of medical men, and nearly a thousand nurses, besides thousands of the general public.

The arrangements which obtained that result will this year be improved and amplified, and even a larger attendance of trade buyers can confidently be expected.

The National Skating Palace, in which the exhibition is to be held, is a commodious hall, very massively built in the form of a modern theatre. The ground floor affords a space of 135 feet by 95 feet available for exhibitors, while above this are two tiers also giving material space for exhibition purposes. The entire place will be well appointed, richly furnished, and decorated in a manner not usual in trade exhibitions.

The extensive refrigerating apparatus beneath the building, used for the manufacture of ice for skating, will be available, and the temperature in the building can be kept down to any degree desired.

Music will be supplied every afternoon and evening by a special orchestra.

Exhibition office, 42 Bishopgate Without, London, E.C. Communications to be addressed to the manager.

How to See Niagara Falls.

One of the best views of the cataract is obtained from the observation tower opposite Prospect Park, entrance to State Reservation, N.Y. Here is an unequalled panorama, embracing the magnificent landscape of river scenery and the falls, and the best view of the river and rapids is gained by a trip over the gorge route, the Niagara Falls and Lewiston railroad, American line. This splendidly-equipped electric line traverses the entire length of the Niagara gorge, on the American shore, close to the water's edge, from the Falls to Lewiston, passing many caves, rapids, battle grounds, and historic points. To see Niagara as it should be seen, cheaply, thoroughly, and quickly, the tourist should ascend the observation tower and later take a trip over one of the most complete electric routes in the world. The regular fare for tower and gorge road together is 75 cents, or the trip alone 60 cents. Trains run every ten minutes. See advertisement.

TER DIE.—The *Sheffield Quarterly Medical Journal* gives the following: It is not alway good to be too curious, especially if you happen to be a hospital patient. One such was greatly concerned about what the physician wrote on the card at the top of his bed. While the nurse was not watching he took down the card, and immediately set up a hollaballoo, groaning and sobbing in a dreadful manner. The nurse came and asked him what was the matter. "Oh, dear! oh, dear," was the response, "I've got to die!" "What is it? Do you feel worse?" asked the nurse in tender tones. "No, not particular, ma'am; but I've got to die; the doctor has wrote it on my ticket." The poor man had so interpreted "ter die," and it was difficult to calm his fears.

The Science of Optics.

BY LIONEL LAURANCE,
Principal of the Optical Institute of Canada.

Emmetropia.

(Em—In. Metron—Measure. Ops—Eye.)

The emmetropic eye—the eye in measure—is one that receives on and around the macula a clear inverted image formed by parallel rays of light, the accommodation being at rest.

An eye is said to be emmetropic when the retina is situated just at the principal focal distance of its refracting system; thus its dioptric power is in such harmony with its axial length that paralell rays of light are brought to a focus at the retina. An eye shorter than the normal, but with greater refractive power, or one that is longer, but with less refraction, may also be emmetropic, provided that the refracting power be in harmony with the axial length, so that the focus of parallel rays lies at the retina when the accomodation is suspended.

To illustrate an emmetropic eye take a +20D, and hold it at a distance of two inches from a screen when parallel rays of light from a window, candle, or lamp will form a sharp, inverted image on the screen. The dioptric system is represented by the refracting lens, and it is in harmony with the distance between the lens and the screen, which represents the distance between the cornea and the retina. When there is not harmony between the dioptric system and the axial length the former will be too strong or too weak for the latter, or the latter will be too long or too short for the former; this constitutes ametropia—(eye out of measure).

When the dioptric system is too strong while the axial length is normal, parallel rays of light, being refracted, will come to a focus before they reach the retina, and instead of a sharp image there will be circles of diffusion. This can be illustrated by adding another convex lens to the +20D. Or if the axial length be too great while the refracting media are normal, then the parallel rays will also come to a focus before reaching the retina, illustrated by moving the +20D lens from 2 inches to 2½ inches. In both these cases, however, the effect is due to the refracting power being too great relatively to the distance between the cornea and retina, for if the eye were longer, but with a proportionately decreased refractive power, the condition would be that of emmetropia.

When the refractive media are too weak, the axial length being normal, parallel rays of light will impinge upon the retina before coming to a focus; illustrated by adding to the 20D lens a — lens which will decrease the refractive power, and instead of a sharp image, circles of diffusion will be seen on the screen. Or, if the axial length be too short while the dioptric system is normal, the same occurs; the parallel rays impinge upon the retina before coming to a focus, illustrated by moving the 20D lens from 2 inches to 1½ inches. In both these cases also the refraction is deficient in relation to the length of the globe, for if the eye were shorter, but with a proportionately increased refractive power, the condition would be that of emmetropia.

The emmetropic eye is 23.50 millimetres from the cornea to the back of the sclerotic. From the cornea to the retina it is 22.231 millimetres or .9 inch. This is the length of the visual line. Its focal length must be calculated from a point in the aqueous (the principal point), from which point to the retina is nearly 20 millimetres or .8 inch. The refractive power necessary to bring parallel rays of light to a focus at that distance is about 50D. The length of the globe varies in errors of refraction, the extremes known being say from ¾ inch to 1¼ inches.

In discussing the eye and its defects of shape and refractive power I shall take .9 inch as the normal axial length and 50D as the normal refractive power. These figures are not mathematically correct (see the diagrammatic eye), but they are sufficiently so to serve as a basis of calculation.

The refractive power is obtained from the cornea, the aqueous, the crystaline, and the vitreous. The first and principal refracting medium is the cornea, the anterior surface of which has a refractive power of 31D; the refractive power of the crystaline by itself is 23D when that humor is at rest (not accommodated). This refracting power of the crystaline is equivalent to a + spherical lens of 11D placed in front of the eye. The dioptric media of the eye, although complex, can be well considered as a strong convex lens.

But the eye is not only a lens, it is also a camera, and can be compared to a photographic apparatus.

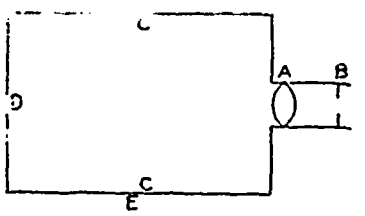


Fig. 28.

Figure 28 is a photographic camera, and Figure 29 is the human eye.

In the camera the refractive media are the lens and the air that fills the box, and in the eye the cornea and the humors are the refracting media.

A, the lens in both figures, is employed for the adjustment of the focus of divergent rays. In the camera this is done by sliding it forward without increasing its convexity; in the eye by increasing its convexity without practically altering its position; both serve the same purpose of bringing divergent rays to a focus at the back of the instrument.

B, the diaphragm in the camera, the iris in the eye regulates the quantity of light admitted, and cuts off the peripheral rays.

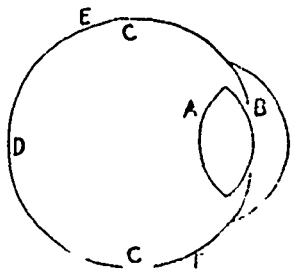


Fig. 29.

CC, the black coating of the camera, the choroid of the eye absorbs excessive and stray rays of light, which, if reflected within the apparatus, would confuse the image.

DD, the frosted glass of the camera, the retina of the eye receives the inverted picture.

EE, the box of the camera, the sclerotic of the eye keeps the whole apparatus in its place and form.

The power of an eye to see depends on a clear image being formed on and around the macula and on this impression being conveyed to the brain. It is disturbed:

(1) If the retina or optic nerve fails to convey the impression of the rays to the brain.

(2) If there be any opacities or obscurities which prevent the rays from entering and passing through the eye freely.

(3) If the refraction, accommodation, or convergence be abnormal, so that the rays of light cannot form a sharply defined image on the rods and cones at the macula.

The first two classes of disturbance belong to ophthalmology, and require medical or surgical treatment; the third belongs to the domain of the optician, and it is of these defects I have to treat.

An object is seen in its natural position, upright, although the retinal picture is inverted. The rays of light that impinge on the retina cause nervous stimulations that are conveyed to the brain which refers the impressions back in the same direction as they came, making the mental picture formed of these impressions at the points of origin of the rays, so that generally the mental picture exactly coincides with the object itself. This, however, is not of necessity, as if the rays be deviated before they enter the eye the mental picture is according to the deviated, and not according to the original rays; thus an object is seen in a false position through a prism, magnified by a convex, diminished by a concave lens, or in a different direction if the rays be reflected as by a mirror. For

To the Trade

AFTER several years of satisfactory services and gratifying results therefrom, we have to announce the resignation of Mr. Lionel Laurance as Instructor for the Institute. The phenomenal success of this Institute in the past warrants us in continuing its good work, both in the interests of our patrons and of the general public. We have therefore sought and secured at much expense as Instructor one who has won a first place as teacher of the Science of Optics, which ranks the Optical Institute of Canada second to none on this continent. We refer to W. E. Hamill, M.D., Principal of the Ontario Optical Institute, thus practically amalgamating the two Institutes.

A familiarity with optics is not difficult to acquire when a teacher has the faculty of imparting his knowledge, and Dr. Hamill possesses this ability in so marked a degree that what is apparently a dry and difficult subject becomes at once both interesting and fascinating, as any former student will testify.

After many years' experience in optics, and with every desire to be of service to you, we emphatically declare that you are wasting both time and money should you seek a knowledge of this subject elsewhere than under the efficient tuition presented by us to you.

Every municipality in Canada will soon have as a necessity its graduated optician, as it now has its dentist and veterinary. Those who start right and start early will secure a prestige and profit which will speedily make the optical department the most profitable and desirable part of their business.

We have said sufficient to direct your attention to this important subject, and should you wish for further information, or to secure a seat in any of the coming classes, you can address

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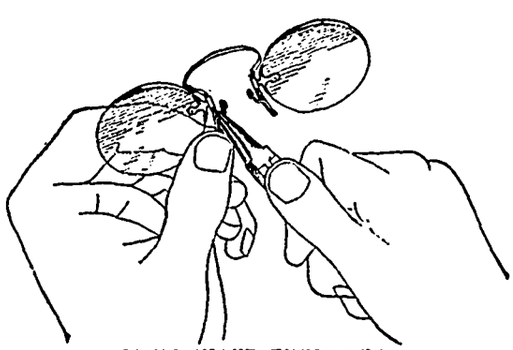

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more on this subject I refer you to the chapter on "The Sense of Sight."

It is said that all children are born far-sighted, so this defect may be considered as want of development of the eye; some of them remain far-sighted, some become normal, and others pass on to short-sightedness, so that this latter may be considered an over-development of the eye. Of the total of any population the proportion of abnormal eyes is surprisingly great; some authorities say 80 per cent., others quote as high as 95 per cent. Anyhow, those people who have normal eyes are very hard to find, and, in fact, an absolutely mathematically perfect eye is perhaps almost impossible.

An object may be considered as a mass of luminous points from each of which a pencil of light diverges to the eye; each pencil forms a cone, of which the point of origin is the apex and the cornea the base. Its axis is the central ray of the cone, and it is not refracted because it is perpendicular to the surface of the cornea at its point of contact. All the other rays of each cone, being refracted, are again brought to a point on the retina. An image may be considered as a series of foci of the rays from the series of points on the object.

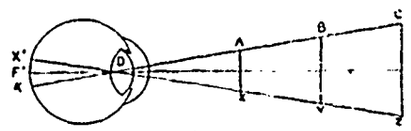

Fig. 30.

In Fig. 30, the eye being emmetropic, parallel rays from the object *AX* fall on the cornea, and being refracted by the dioptric media form a sharp inverted picture, *X'A'*, on the retina. The principal axial ray *FF'* is not refracted, and the secondary axial rays, *AA'*, *XX'*, pass through also without any or with very little refraction, crossing the principal axis at the nodal point *D*. The size of the inverted retinal picture *X'A'* depends on the angle subtended at the nodal point *D* by the rays *AA'* and *XX'*, from the extremities of the object *AX* after they cross each other at *D*, and this again depends on the angle under which they enter the eye.

It will be noted that *AX* at, say, 20 ft., *BY* at, say, 60 ft., and *CZ* at, say, 200 ft., all form the same sized retinal picture *X'A'*, and only habit and education cause us to know whether it be a smaller object at a shorter distance or a larger one at a greater distance than is seen. The retinal image of a certain object is not of the same dimension in every eye, as the longer the distance from the crystaline to the retina the greater will be the space occupied by it. Comparative size of objects, however, is the same in all eyes. (See chapter on "Sense of Sight.")

The P.R.—*Punctum Remotum*—far point of vision, is the very greatest distance at which the eye can see, and in the emmetropic eye it is at infinity (symbol ∞). The rays of light from the most distant star can enter an eye and be brought to a focus on the retina, and therefore infinity, which means a distance without limit, is the furthest point of vision (symbol V) of the emmetropic eye. As the divergence of light rays is so small when they proceed from very distant points to the pupil of the eye, they are considered parallel. If the source of the light be 20 ft. or further away the rays are considered to be parallel equally with those from one of the fixed stars. Therefore, in practical optics 20 feet is taken as ∞, that distance being the nearest point from which rays incident to the eye are parallel, and it is the P.R. in emmetropia. Rays of light from points nearer than 20 ft. are divergent rays.

The P.P.—*Punctum Proximum*—near point—is the nearest point at which the reading of fine print can be effected. In the emmetropic eye it is at any distance between 2¾ and 8 in. according to age, it being nearer in youth and gradually receding to a greater distance. It is considered normal if at 8 in., the eye then being practically fully accommodated and changed from a 50D lens to one of 55D. The crystaline lens, which is the only part of the eye that will have altered its form, being changed from a 23D lens to a 28D.

At 20 ft. no accommodation is employed, because, the rays being parallel, the refraction of the eye (50D) suffices to bring them to a focus at the retina, the eye being entirely at rest. Some consider that the adjustment of the eye for parallel rays is achieved by an equilibrium between the radiate and sphincter fibres of the ciliary, both being always in a state of tension for vision near and far. I know of nothing to support this theory.

At any point nearer than 20 ft., say, 19 ft., the rays are divergent, and if they have to be focussed on the retina a small amount of accommodation must be employed. As the distance between the object seen and the eyes is decreased more and more accommodation must be exerted until the nearest point at which the eyes can be accommodated is reached. Therefore, accommodation is used for every distance lying between the P.R. (20 ft. in emmetropia) and the P.P., and this distance is called the range of accommodation.

The necessary dioptric change of the crystalline lens for seeing at the P.P. represents the greatest amount of accommodation that can be exerted, and is called the amplitude of accommodation.

As accommodation is a function dependent on the strength of the ciliary muscle and the flexibility of the crystalline lens, it is but natural to find that in old age it becomes weaker and more deficient; in fact the amplitude of accommodation is greatest at ten years of age, when the lens is possessed of extreme flexibility, and then commences to decrease gradually. This decrease is about equal in all eyes, whether emmetropic, hyperopic or myopic, and therefore the amplitude of accommodation—that is, the amount that can be exerted—is practically the same, (or at least should be) no matter what the condition of the refraction in everyone's eyes according to age. This must not be confused with the range of accommodation, which varies considerably according to the refraction.

As the nearer the object is to the eyes the more divergent are the rays, so also the nearer it is the more accommodation must be exerted in order to see it. Conversely, the more accommodation a person can exert the nearer he can bring a thing up close to the eyes and still see it, so the greater the amplitude of accommodation the shorter is the distance of the P.P. The following table gives the two at various ages:

Age Years	Accommodation in Diopters	Corresponding P.P. Distance in inches.	in Cm.
10	14.00	2¾	7.
15	12.00	3¼	8.50
20	10.00	4	10.
25	8.50	4¾	11.50
30	7.00	5½	14.
35	5.50	7	18.
40	4.50	9	22.50
45	3.50	11	28.50
50	2.50	16	40.
55	1.75	22	60.
60	1.00	40	100.
65	.50	80	200.
70	.25	160	400.
75	Nil	∞	∞

The loss of the accommodative power is smaller when there is a lesser quantity to lose it from, so that the decrease in the five years between 10 and 15 is 2D, that between 65 and 70 is ¼D.

To know the amplitude is often necessary. It can be accurately determined by the following test. Place the reading card at a distance of, say, 16 in.—ordinary reading point—and, without allowing it or the head to be moved, find the very strongest convex and the very strongest concave lenses through which can be read the smallest line possible. The difference between the two numbers represents the amplitude of accommodation; because when the person reads the line with the strongest convex lenses his crystaline lens must have been flattened as much as possible; that is to say, he read without employing any accommodation; and when he reads through the strongest concave lenses he is exerting the utmost accommodation that he is capable of; and therefore the difference between the two lenses shows how much that is. If he reads with +2.50D and −2.50D he has an amplitude of 5D. Sometimes both lenses are concave, as −7D and −2D, then the amplitude is also 5D, or they may be both convex as +2D and +4D, the amplitude being 2D.

The small Cape marigold (*calendula Pluvialis*) was dedicated to St. Swithin.

The habitat of oats is believed to have been the region north and west of the Alps.

Pharmacy in England.

The Annual Dinner of the Pharmaceutical Society—Dr. Symes on the Council—Extract of Malt with Petroleum Oil—Apenta, the New Hungarian Aperient Water—Antikamnia in England—A New Milk Sterilizer.

(By Our London Correspondent.)

The annual dinner of the Pharmaceutical Society is usually a notable function that arrives at the end of session and affords the friends an opportunity of saying all sorts of nice things about the society and its work. Since Mr. Carteighe has been at the helm there has been no lack of big-wigs, both in science and medicine, willing to grace the dinner with their presence and compliment the president and council on their progress towards perfection. It is rather a pity that the president does not care for music, as of late the dinners have distinctly suffered from the absence of dulcet notes to enliven the feast and act as an antidote to the soporific effects of certain after-dinner orations. A special blunder this year was perpetrated by engaging the Hotel Métropole for the wrong evening,and then when this was discovered it was found that a well-known hospital for diseases of the skin had secured the correct date. An effort was made to bribe the hospital to give way, by offering a donation of $100 to their funds, but they declined. Hence the dinner this year took place in the King's Hall of the Holborn Restaurant. Another curious feature concerning this annual banquet is the number of stewards whose names are published beforehand, but who do not turn up on the evening. Of course, a certain number are really necessary, in order to guarantee the society against loss incurred by the invitation of guests. But why these gentlemen give in their names as stewards of a dinner they do not intend to taste would probably puzzle most people. Finally, before dismissing the dinner, let it be noted that, loyal pharmacists as we are, the toast of "The Queen" nearly escaped its usual accompaniment of the national anthem, and had it not been for the initiative of one of the guests, Mr. Coroner Hicks, it would certainly have escaped attention. Noticing the omission, however, he started the anthem himself, and the cue was promptly taken and due honor paid.

Dr. Symes has been re-elected to the council to fill the vacancy created by the retirement of Mr. N. H. Martin. Dr. Symes owes his title to a German Ph.D., and is head of the company, Symes & Company, Limited, of Liverpool. He is a man of considerable talent, energy, and determination, and, although hardly popular, is highly esteemed. His absence of tact and finesse is noticeable,but readily forgiven, as his genuine nature is known and allowance made for his dogged obstinacy. Of late he has taken up with a passing fad, an association that was to deal more with trade affairs than the society has ever cared to do, but as this scheme is *in nubibus* he has probably concluded he can do more good in his place as councillor. It is generally believed that he only left the council, as Mr. Martin has done, when he found that nothing could be done on the lines desired, and that Mr. Carteighe's influence was almost omnipotent. It is quite certain that he will again assert his independence and, although the additions to the council are too small to affect the general policy that has been pursued for some years now, he will not hesitate to lift his voice when the occasion arises.

Messrs. Howard Lloyd, of Leicester, are pushing a new specialty, evidently based on the lines of Angier's Emulsion. It is extract of malt with 33 per cent. of petroleum oil and the requisite proportion of hypophosphites. This petroleum oil is the paraffinum liquidum of the German Pharmacopœia, and the liquid petrolatum of the United States Pharmacopœia. It is odorless, tasteless, neutral, and white, and, if of equal therapeutic value, much superior to cod-liver oil in palatability. The same oil is run by a company, I believe, under the name of "terrol" and recommended for all purposes for which cod-liver oil is taken.

The Apollinaris Company are not satisfied with the removal of the well-known Hunyadi Janos water from their hands by its proprietor, Mr. Andreas Saxlehner. They have therefore introduced a new aperient water under the title of "Apenta." It is also a natural Hungarian aperient water, drawn from the Uj Hunyadi springs, situated in the neighborhood of Buda-Pesth. I have not yet seen an analysis published, but it would probably show great similarity to Hunyadi Janos in composition. It was stated some years ago that the original spring of Hunyadi Janos gave out, and that a fresh supply had to be obtained in the neighborhood. Whether this was so or not, I do not know, but several complaints have occurred since then as to the absence of the accustomed efficacy in the water. I remember hearing a well-known physician soundly rate the representative of the Apollinaris Company, in my presence, concerning this alleged depreciation. The representative explained afterwards that the physician was more incensed at the company settling down in Stratford Place, all amongst the west-end physicians, than at any real or supposed alteration in the water. This leads me to a suggestion. There is no doubt that all natural mineral waters are liable to change, and surely our soda water people could invent a good *palatable* aperient water that would do much to replace the natural unpalatable article. No one goes nowadays to Seidlitz for the water; the portable powder has replaced the genuine article. But the drawback to a more general use of aperient waters is their nasty taste, and here the chemist mineral water ought to "strike ile." Surely it would be no great task to evolve a compound containing the necessary medicinal salts in solution and the whole covered by orange or lemon so as to be really palatable. I remember suggesting a combination of lemonade with a certain chalybeate water some years ago and now it is put up in siphons and regularly sold. It is an immense improvement on the old rusty, inky taste, and even children will take it without complaining. Aperient waters are admitted by medical men to be much superior to cathartics in cases of habitual constipation, and when taken regularly every morning on an empty stomach certainly assist the daily operating of the bowels.

Antikamnia is being pushed with considerable assiduity in England just now. The company have sent free samples, both of the powder and tablets, to every registered practitioner, which means some 35,000 doctors. There can be no question that in certain cases, such as neuralgia, sciatica, etc., this mixture affords considerable relief. It is a curious fact that some medical men resent this free sample business, and even take the trouble to notify senders that they need not send any more. But the average doctor is glad to get new preparations, and often gives them a trial, although perhaps more often than not they are consigned to the waste paper basket. There is one class of free samples that is always welcomed at the doctor's residence, and chemists should bear this is mind, and that is dietetic preparations. New extracts of beef, condensed peptonized milk, etc., are promptly tested and the merits discussed in the family circle. Nothing is so likely to appeal to the medical man as this form of free sample after it has been appreciated in his own home.

A new sterilizing saucepan for boiling milk has been invented by Mr. Aymard, a popular surgeon in one of the eastern counties. It consists of an outer iron saucepan containing the hot water, into which an inner saucepan fits perfectly tightly, and this milk container is supported on a cylinder that becomes full of steam so that the milk is surrounded on all sides by steam. As a result of this improved steam jacket arrangement, milk can be raised to a temperature of 200° F. in a few minutes, and maintained at that temperature for any length of time without boiling over, or forming a scum on the surface, or obtaining the disagreeable flavor of burnt milk. Mr. Aymard has excellent bacteriological opinions to support his dictum that five minutes at 200° F., when the whole liquid is uniformly at that temperature, is equivalent to any amount of boiling in the ordinary way. Since many diseases, such as tuberculosis, typhoid fever, etc., have been traced to the milk supply, medical men have strongly recommended that the suspicious fluid should be boiled. This is undoubtedly the best milk sterilizer yet suggested.

Boiling water kills the germs and animalculæ it contains, but leaves them in the water to putrefy,and should,therefore, be filtered as well as boiled.

Formulary.

EFFECTIVE DEPILATORY.

Sulphide of barium	1 part
Lime (freshly burnt and slacked)	1 "
Rice starch	2 "
Salicylic acid	q.s.
Glycerine	q.s.
Eau de Cologne, or spirit of wine	q.s.

Mix the first three ingredients intimately, then make into a thinnish paste with the spirit in which has previously been dissolved about 1 per cent. of acid salicylic, and 3 per cent. of glycerin. Apply to the part where required, and allow it to remain until a slight soreness is felt, then remove. Repeat application daily until the hairs are removed.—*Magazine of Pharmacy.*

CANTHARIDIN OIL.

Cantharidin	1 grain
Acetone	1 dram
Cotton-seed oil	2 ounces.

Dissolve the cantharidin in the acetone and add the oil.

NEW TOOTH-POWDER AND PASTE.

Professor Metral, of Geneva, Switzerland, recommends the following tooth powder:

Strontium carbonate	15 gm.
Purified sulphur	15 gm.
Attar of rose	6 drops.

Mix.

For those who prefer a paste, the professor suggests this formula:

Strontium carbonate	12 gm.
Sulphur purified	6 gm.
Castile soap	27 gm.
Oil of rose	12 drops.
Glycerin, sufficient	
Mucilage of gum arabic, sufficient	

Mix and make a paste.—*National Druggist.*

CONSUMPTION REMEDY.

Creosote	½ oz.
Chloroform	½ oz.
Oil of wintergreen	½ dr.
Oil of peppermint	½ dr.

Mix well and add—

Glycerine	8 oz.
Syrup of Virginian prunes	4 oz.
Rectified spirit	8 oz.
Water	4 pints.

One teaspoonful of Scotch whisky and an ounce of water four times daily after food.—*British and Colonial Druggist.*

LIQUID GLUE.

Fish glue	100
Acetic acid	125
Gelatin	20
Water	125
Shellac varnish	20

Dissolve the fish glue in the acid, the gelatine in the water, mix the solutions, and then gradually incorporate the varnish.—*Sudd. Apoth.-Zeit.*

FRECKLE REMOVER.

A correspondent of the *Drogisten Zeitung* recommends the following as a certain remedy for freckles:

Nitric acid dilute	7 gm.
Eau de cologne	115 gm.
Neroli oil	10 drops.
Peroxide of hydrogen	60 gm.
Glycerin	100 gm.
Cochineal solution	3.5 gm.
Distilled water	30 gm.

Mix the first three ingredients, and to the mixture add the rest in the order in which they occur. Let stand 14 days and filter. Use after washing the skin, applying on a linen rag, and let dry on.—*Nat. Druggist.*

TOILET CREAM, WITCH-HAZEL.

Take of

Hydrous wool fat	4 ounces.
Petrolatum	12 "
Glycerine	6 "
Distilled extract witch-hazel	3 "
Boroglyceride, 50 per cent. solution	2 "

Mix the hydrous wool fat and petrolatum; add the glycerine and boroglyceride: lastly, add the extract of witch-hazel. Perfume with oil of lavender, or as pleasure. This makes an excellent toilet cream.

INSECT BITES.

The following new remedy has been sent from Accra, on the Gold Coast, to an English journal:

℞ Liquor of ammonia	2½ dr.
Collodion	50 m.
Salicylic acid	5 gr.

Mix.

CALISAYA TONIC.

Chinchona, Loxa	g.	100
Bitter-orange peel	"	100
Wild cherry bark	"	15
Cinnamon	"	10
Calamus	"	4
Syrup	cc.	750
Alcohol		
Water..of each sufficient to make	"	2,250

Reduce the solids to a No. 30 powder, and percolate with a menstruum consisting of 2 volumes of alcohol and 1 of water.

PATENT LEATHER VARNISH.

A varnish that will not peel off or crack from the leather is a desideratum, and one that should sell through chemists, and bear a good profit. Such a one is, according to the *Trade Recorder*, to be made from the following formula:

Rosin, black	7½ ounces.
Venice turpentine	7½ "
Oil of turpentine	7½ "
Sandarach	15 "
Shellac	1 lb. 14 "
Alcohol	11½ pints.
Lampblack	4 ounces.

Digest the rosin, turpentine, sandarach, shellac, and alcohol together, afterwards add the lampblack, and well mix. Apply with a soft brush.—*Magazine of Pharmacy.*

ANTI-ASTHMATIC CIGARETTES.

Dried leaves of belladonna, 50 parts; hyoscyamus, 20 parts; stramonium, 30 parts; tobacco, 40 parts; jaborandi, 10 parts; sage, 20 parts; and water drop wort (*Phellandrium aquaticum*), 12 parts. Cut fine, sift to remove dust, moisten with 40 parts of cherry-laurel water well distributed, and then make into cigarettes of the usual size. One should be used before and after each attack, the smoke being deeply inhaled. — *Pharmaceutical Journal.*

SYRUP OF PHOSPHATE OF IRON AND CALCIUM.

Dr. Siboni, in the *Bollettin Cohimico-Farmaceutico*, gives the following directions for making this preparation:

Iron filings (containing not less than 98 per cent. of pure iron)	2.29	grammes.
Phosphoric acid (sig. 1.350)	42.00	"
Calcium phosphate, neutral	14.60	"
Sugar	250.00	"
Glycerine	50.00	"
Oil of lemon	5.00	"
Distilled water, sufficient to make	1,000	c.cm.

Put the iron into a mattress of the capacity of 1 litre, and to it add the phosphoric acid, diluted with an equal amount of distilled water, and let stand until the evolution of hydrogen has ceased. To accelerate the process, the vessel may be set in water heated to about 70° C. (158° F.). To the calcium phosphate, which should be powdered, add 200 c.cm. distilled water, stir, and pour into the vessel containing the iron. When the phosphate is dissolved, add the sugar, glycerine, and oil of lemon.—*Magazine of Pharmacy.*

SOLUBLE BISMUTH PHOSPHATE.—This is prepared (*Pharm. Zeit.*) by fusing together bismuth oxide, sodium hydrate, and phosphoric acid. The compound contains 20 per cent. of bismuth oxide, and is soluble in two parts of water, although concentrated solutions are not permanent. The solution tastes slightly bitterish salty. This new compound has been given in doses of from 0.2 to 0.5 gram as an intestinal antiseptic, and in acute gastric and intestinal catarrh.

FOR SOFT CORNS.—Daily applications with a saturated aqueous solution of tannic acid is recommended as a famous and effective remedy.

POISONING BY CLOVE OIL.—A case is reported (*Deutsch. Med. Woch.*) where a grown person swallowed one ounce of oil of clove. Vomiting ensued immediately, while an intense burning sensation in the stomach was experienced. Then unconsciousness supervened, accompanied by cyanotic symptoms. This condition lasted several hours. Complete recovery occurred in two days. Eugenol was not discovered in the urine.

A perfect and permanent emulsion of creosote can be made by simply shaking it with milk.

Photographic Notes

A New Color Photography.*

Of the problem of color photography, which was as old as photography itself, three distinct solutions, said M. Lippmann, had been realized since the beginning of the century. In 1840, E. Becquerel converted the surface of a daguerrotpye plate into the violet subchloride of silver, and by projecting on it the image of the solar spectrum and other objects obtained good colored impressions. The image, however, was not fixed in the photographic sense of the word, but was blotted out if the plate was exposed to daylight. The second method for color photography might be called the three-color method. It could give a very good approximation to the truth, and probably had a great future before it. It was an indirect method, because the colors were not generated by the action of light, but were supplied subsequently by the application of aniline dyes or other pigments. The third and latest was the interferential method, which he first published in 1891, and the latest results of which he was bringing forward. For obtaining colored photographs by this method only two conditions had to be fulfilled. There was wanted, first, a transparent, grainless, photographic film of any kind capable of giving a colorless fixed image by the usual means; and, second, a metallic mirror placed in immediate contact with the film during the time of exposure. A mirror was easily formed by means of mercury. The photographic plate being first enclosed in a camera slide, mercury was allowed to flow in behind it from a small reservoir connected with the slide by india-rubber tubing. The slide was then placed in the camera. After exposure the slide was removed from the camera, and the mercury reservoir lowered so as to allow the mercury to flow back to it. The plate was then taken out, developed, and fixed. When dry, and examined by reflected light, it appeared brilliantly colored. The sensitive film, which must be in contact with the metallic mirror, the glass of the plate being turned towards the objective, might be made either of chloride, iodide, or bromide of silver contained in a substratum either of albumen, collodion, or gelatine. The corresponding developers, acid or alkaline, must be applied, the fixing being by cyanide or bromide of potassium. Thus bright color photographs might be obtained without changing the processes of ordinary photography; the same films, developers, etc., were employed, and even the secondary operations of intensification and isochromatic action were made use of with full success. The presence of the mirror behind the film during exposure made the whole difference. From a chemical point of view nothing was changed, the result being a uniform brownish deposit of reduced silver. And yet the presence of a mirror during exposure caused this deposit to show bright colors. The theory of these colors was discovered by Newton, who subjected them to measurement. He showed that when two parallel reflecting surfaces are separated by a very short interval and illuminated by white light, they reflect only one of the colored rays which are the constituents of white light. If a color photograph of the spectrum, and especially the violet end of the image, were examined, it would be found to consist of a deposit of brown reduced silver. In the case of an ordinary photograph this deposit would simply be a formless cloud of metallic particles. But in a color photograph the cloud had a definite, stratified form; it was divided into a number of equidistant strata parallel to the surface of the plate and 2-10,000th of a millimetre apart. These acted as the reflecting surfaces considered by Newton, and being at the proper distance for reflecting violet rays, only reflected violet rays. In the same way the other parts of the photograph were built-up strata with the proper intervals for reflecting the other colors of the spectrum. The appearance of color was therefore due to this regular structure, imprinted on the photographic plate. M. Lippmann proceeded to discuss the formation of this structure, and showed that by the presence of the mirror waves of light, which would otherwise have rushed through the film at enormous speed without leaving any permanent impression, were changed into standing waves—that is, waves surging up and down, each in a fixed place. Each of these waves impressed the sensitive film where it stood, producing one of the photographic strata referred to.

A number of photographs taken by this method were exhibited, in which the colors of stained glass and of natural objects, such as flowers and trees, were reproduced with wonderful brilliancy.—*British and Colonial Druggist.*

* From a lecture before the Royal Institution, by Mr. Gabriel Lippman.

Advertising.

Practical Hints on Advertising.

To those who realize the immense volume of advertising that has been done in past years it may seem to be an exaggeration when I say that I firmly believe that the advertising of America will be doubled in volume in the next five years. I am in a position to see the development and possibilities of advertising. Hardly a day passes when I am not in receipt of from one to half a dozen communications from people who have not advertised previously, or who have advertised only in a very perfunctory way. These people are thinking about the subject of advertising—thinking about it seriously—giving it consideration which it has never been given before.

* * * *

There is not a business under the sun that cannot be advertised profitably. Every manufacturer can advertise profitably, if he will only find the way to do it. Every jobber can make his advertising profitable, if he will give the matter sufficient thought.

* * * *

The manufacturer wants the trade of the jobber; the jobber wants the trade of the retailer; and the retailer wants the trade of the consumer. It is necessary for each seller to bring himself and his wares to the attention of possible buyers. It must be done in some way, and by whatever means it is accomplished that means comes under the general head of advertising.

* * * *

The travelling salesman is in some measure an advertisement. A personal letter or a personal interview is an advertisement. An impersonal circular, or catalogue, or notice in the newspapers is an advertisement. Anything that gets the attention of possible buyers is advertising.

* * * *

As more thought is devoted to the subject, more ways of accomplishing this end are developed. The newspaper is not good for everybody. The magazines are not good for everybody. Circulars are useless in some cases. Each man in business must study his own situation—or employ someone to study it for him—and decide which of the methods of advertising is best for him to pursue.

* * * *

Judicious advertising is bound to pay. There can be no possible doubt about this. It will pay in 1896 better than it has ever paid before, because general business will be better, and the general public is becoming more and more interested in advertising and advertisements. The man who begins advertising in 1896 will have a better chance for success than any one who has begun heretofore.

* * * *

The other day, after I had told a man I did not believe it would ever pay him to advertise in the catalogues of various wholesale druggists, he told me that from one of these catalogues came the greatest number of responses he ever had from an advertisement. It developed that this particular catalogue contained coupons which might be torn out, and mailed to advertisers, and that the particular advertisement in question offered to send a full-sized package of medicine free of charge if the recipient would pay the express charges. The responses came in very well, but they came from small dealers in insignificant and remote localities, so that the actual trade secured from the advertisement amounted to nothing at all.

PROFIT FROM
100 to 200
PER CENT.

EVERY JOBBER
SELLS
TANGLEFOOT.

REGULAR

ONE BOX, ... 45 cents.
ONE CASE, ... $4.00.
(10 Boxes)
FIVE CASES, ... $3.75.

"LITTLE"

ONE BOX, ... 18 cents.
ONE CASE, ... $2.10.
(15 Boxes)
Size, 5½ x 9 inches.

..TANGLEFOOT..

SEALED

STICKY FLY PAPER.

The Difference....

Some Leaks at the Edges.
Some Soaks Through the Paper.
Some Dries After Short Exposure.
Some Tears Easily in Opening.
Some Spoils over Winter.
Some Allows Flies to Escape.

TANGLEFOOT DOES NOT!

HOLDERS are no longer packed with TANGLEFOOT, but are put up separately in boxes of fifty, which job for $1.00.

Now, I know that the only kind of advertising that is good is the kind that sells goods. It doesn't make any difference how much comment the ad excites. If it does not bring profitable returns, it isn't as good as it ought to be. I mean this in a general way, of course. The single advertisement may frequently fail in bringing profitable returns, but if the entire advertising isn't effective something is decidedly wrong.

* * * *

An advertisement that merely gets inquiries and doesn't get business, doesn't amount to much. It is comparatively easy to construct an advertisement that will bring inquiries of some kind. This is particularly true if you have something free to offer.

* * * *

There are a great number of people in America who simply lie in wait for advertisements headed "Free." No matter what the thing is, they will send for it. There is a mild sort of excitement about it. There is a speculative element. They send six cents in stamps for something they never heard of, and then watch the post office for results. Children in the country often find much amusement in this sort of thing.

* * * *

The advertiser who measures his results by the number of inquiries he receives, rather than by the actual sale of goods, is sure to waste his money. Inquiries are all right if they come from the right sort of people. I believe that few of the right sort of people are influenced by cute advertising.

* * * *

There are more people convinced by straight talk and common sense than by humor or eccentricity. Something smart and cute may occasionally make a hit—that is, it may occasionally cause a great deal of comment, and may possibly result in some sales, but the only kind of advertising that is permanently and continuously profitable is the common sense kind that tells a plain story in a plain way. You can bet on that and you can't bet on the other kind. Common sense advertising will succeed ninety-nine times where novelty will succeed once.

* * * *

An offensive ad narrows the field of the advertiser. He loses absolutely those to whom the ad does give offence, and his constituency is reduced to the comparatively small number whom the expression happens to strike very hard.

* * * *

Perhaps those who are offended may be very foolish for taking offence, but that doesn't make the advertisement any better. It doesn't make any difference whether people are foolish or not so long as they buy the advertiser's goods.

The New System.

The following druggists have been prompt in adopting the newest and best method of encouraging a cash trade in their stores. Each cash customer receives a printed rebate check issued by the latest National Cash Register. The check is dated, the amount of the purchase printed on it, with a request like this: "Return $5 in checks and get 25 cents in trade." The register prints a detailed list of the sales as well as giving the day's total sales. Also keeps accurate account of all charges, collections, and disbursements, and so prevents many mistakes. When may we add your name to the list?

H. F. McCarthy, Ottawa.
C. H. Couen, Toronto.
D. M. Waters, Belleville.
W. S. Detlor, Napanee.
R. S. Shilington, Ottawa.
Dickson Drug Co., Jas. Findlay, Pembroke.
John T. Wait, Arnprior.
Jos. Clark, H. H. Hough, Renfrew.
W. H. Medley, Kingston.
M. Patterson, Almonte.
W. G. Smith, Guelph.
R. B. W. Robinson, Ottawa.

Business Notices.

As the design of the CANADIAN DRUGGIST is to benefit mutually all interested in the business, we would request all parties ordering goods or making purchases of any description from houses advertising with us to mention in their letter that such advertisement was noticed in the CANADIAN DRUGGIST.

The attention of Druggists and others who may be interested in the articles advertised in this journal is called to the *special consideration* of the Business Notices.

Your neighbors, the butcher, the baker, the confectioner, the restaurant keeper, all buy Tanglefoot by the box. Do you sell it to them?

The Julius King Optical Co., of New York, complain of the infringement of their trade marks by imitators of their goods, and express their determination to prosecute all offenders.

James N. North, manager for James W. Tufts, Boston, with his family is taking a much needed rest in Europe. The party is now in Italy, and will visit France and Switzerland before their return home, which will be about July 1st.

Archdale Wilson & Co., of Hamilton, have entered an action against the Lyman Bros. Co., Toronto, for infringement of their Fly Pad Trade Mark, and for an injunction to restrain the Lyman Bros. Co. from imitating their fly pads, boxes, labels, and envelopes.

We would call the attention of those on the lookout for a desirable location for a drug store to the advertisement of the stand in the Masonic Temple, London.

We happen to be personally conversant with the building and the locality, and, from its topography and the advantages set forth in the advertisement, there is very little doubt that it is a good site.

Any person looking for an opening will do well to look into this one, and, as such openings are very few, it would be desirable to act promptly.

Paper Boxes etc.

The Elliott Paper Box Co., 122 Adelaide street west, Toronto, manufacture full lines of paper boxes, cartons, folding boxes, drug labels, etc., and solicit orders from the trade. Estimates will be furnished on application.

Sponges.

Messrs. Saunders & Evans, 34 Church street, Toronto, advertise in this issue a choice selection of sponges. They claim to be the only house in Canada importing sponges direct from the fisheries in the Bahamas and elsewhere, and, as they confine themselves almost entirely to this line of goods, are able to offer them at low prices. Read their advertisement.

Acetic Acid.

During the past year I have made a number of analyses of the acetic acid manufactured and sold by Peuchen & Co., 10 Bay street, Toronto, with a view to ascertaining its strength and purity. On finding present no mineral acids, no metallic adulterations, or rather impurities, and no organic matters in the least degree objectionable, all of which, coupled with the fact of having had ample opportunities of judging of its harmlessness when used medicinally, I feel in every way justified in giving this certificate vouching for its purity as a manufactured product.

A. R. PYNE, M.B.
Government Analyst.

Strongest Indorsement Ever Given any Remedy for the Cure of Complexion Blemishes.

UNITED STATES HEALTH REPORTS' OFFICIAL INDORSEMENT.

(From United States Health Reports of December 24th, 1895. Toilet Necessities.)

"Time and again have the United States Health Reports cautioned readers against complexion remedies of unknown composition, and which have been shown by thorough chemical analysis to contain ingredients which do much harm.

"The desire on the part of those suffering from physical defects of the face and form, or from the hundred and one things which mar personal appearance, to obtain relief and something that will give them equal advantage with their more fortunate sisters in the way of securing the charms which hold and attract mankind, has resulted in the market being flooded with preparations which, claiming

much, furnish but little relief, and in a great majority of cases are positively harmful, and as such have received our just condemnation.

"In the light of what has been said, it is a matter of genuine satisfaction to the compilers of these reports to come upon a line of preparations which has been found by expert examination, conducted through our inquiry bureau, to be all, and more, than the individual representing the same claims for his specifics. Reference is had, particularly, to Dr. Campbell's Safe Arsenic Complexion Wafers and Fould's Medicated Arsenic Complexion Soap, now owned and offered to the public by Mr. H. B. Fould, of 214 6th avenue, New York.

"The above remedies are sold in all first class drug stores, and have stood the test for years, and are especially valuable for the complexion. They clear the skin, purify the blood, develop the form, and clear the complexion thoroughly; for rough skin and for expelling blackheads and pimples they are invaluable. They are put up in attractive forms, and have demonstrated to thousands of ladies who have tested the same that nothing better has ever been compounded for the purpose of beautifying the face and features.

"As a large proportion of our readers are found among ladies and in the home circle, this report is written in their interest, and not for the purpose of advertising these remedies, the reference to these superior articles being purely incidental, but, inasmuch as we have satisfied ourselves of their worth, it is only a public duty to say as much in a report, based upon our honest and unbiased examination, made in pursuance of the object which sustains this publication.

"Both Dr. Campbell's Wafers and Fould's Arsenic Soap are toilet essentials of such superior character that it is a pleasure for the United States Health Reports to give them an editorial indorsement."

Dr. Campbell's Safe Arsenic Complexion Wafers and Fould's Medicated Arsenic Soap can be had at any first class drug store in the United States, Canada, and Great Britain. Also sent by mail on receipt of price. Wafers, per box, $1; six large boxes, $5. Soap, 50 cents per cake, or $5 per dozen cakes.

Address all mail orders to the Lyman Bros. & Co., 71 Front street east, Toronto, Ont., Canada, and Lyman, Sons & Co., Montreal, Canadian agents.

Two in One.

The two organizations known as the Ontario Optical Institute and the Optical Institute of Canada have been amalgamated, and the new institute will be known as the Optical Institute of Canada, with quarters at 60 Yonge street, Toronto. This organization will be under the management of Mr. J. L. Leo, of Montreal, the classes being conducted by Dr. E. Hamill, whose knowledge of optics

CANADIAN DRUGGIST PRICES CURRENT

Corrected to June 10th, 1896.

The quotations given represent average prices for quantities usually purchased by Retail Dealers. Larger parcels may be obtained at lower figures, but quantities smaller than those named will command an advance.

ALCOHOL, gal	$4 37	$4 65
Methyl	1 90	2 00
ALLSPICE, lb	13	15
Pow.dered, lb	15	17
ALOIN oz	40	45
ANODYNE, Hoffman's bot., lbs	50	55
ARROWROOT, Bermuda, lb	50	55
St. Vincent, lb	15	18
BALSAM, Fir, lb	40	45
Copaiba, lb	65	75
Peru, lb	3 75	4 00
Tolu, can or less, lb	95	1 00
BARK, Barberry, lb	22	25
Bayberry, lb	15	18
Buckthorn, lb	15	17
Canella, lb	15	17
Cascara, Sagrada	25	30
Cascarilla, select, lb	18	20
Cassia, in mats, lb	18	20
Cinchona, red, lb	60	65
Powdered, lb	65	70
Yellow, lb	35	40
Pale, lb	40	45
Elm, selected, lb	18	20
Ground, lb	17	20
Powdered, lb	20	28
Hemlock, crushed, lb	18	20
Oak, white, crushed lb	15	17
Orange peel, bitter, lb	15	16
Prickly ash, lb	35	40
Sassafras, lb	15	16
Soap (quillaya), lb	13	15
Wild cherry, lb	13	15
BEANS, Calabar, lb	45	50
Tonka, lb	1 50	2 75
Vanilla, lb	$ 00	$ 50
BERRIES, Cubeb, sifted, lb	30	35
powdered, lb	35	40
Juniper, lb	7	10
Ground, lb	12	14
Prickly ash, lb	40	45
BUDS, Balm of Gilead, lb	55	60
Cassia, lb	25	30
BUTTER, Cacao, lb	75	80
CAMPHOR, lb	65	75
CANTHARIDES, Russian, lb	1 40	1 50
Powdered, lb	1 50	1 60
CAPSICUM, lb	25	30
Powdered, lb	$ 30	35
CARBON, Bisulphide, lb	17	18
CARMINE, No. 40, oz	40	50
CASTOR, Fibre, lb	20 00	20 00
CHALK, French, powdered, lb	10	12
Precip., see Calcium, lb	10	12
Prepared, lb	5	6
CHARCOAL, Animal, powd., lb	4	5
Willow, powdered, lb	20	25
CLOVE, lb	16	17
Powdered, lb	17	18
COCHINEAL, S.G., lb	40	45
COLLODION, lb	75	80
Cantharidal, lb	2 50	2 75
CONFECTION, Senna, lb	40	45
Creosote, Wood, lb	2 00	2 50
CUTTLEFISH BONE, lb	25	30
DEXTRINE, lb	10	12
DOVER'S POWDER, lb	1 50	1 60
ERGOT, Spanish, lb	75	80
Powdered, lb	90	1 00
Ergotin, Keith's, oz	2 00	2 10
EXTRACT, Logwood, bulk, lb	13	14
Pounds, lb	14	17
FLOWERS, Arnica, lb	15	20
Calendula, lb	55	60
Chamomile, Roman, lb	25	30
German, lb	40	45
Elder, lb	20	22
Lavender, lb	12	15
Rose, red, French, lb	1 60	2 00
Rosemary, lb	25	30
Saffron, American, lb	65	70
Spanish, Val'a, oz	1 00	1 25
GELATINE, Cooper's, lb	75	80
French, white, lb	35	40
GLYCERINE, lb	22	25
GUARANA	200	2 25
Powdered, lb	2 25	2 50
GUM ALOES, Cape, lb	18	20
Barbadoes, lb	30	50
Socotrine, lb	65	70
Asafœtida, lb	40	45
Arabic, 1st, lb	70	75
Powdered, lb	80	95
Sifted sorts, lb	45	50
Sorts, lb	30	35
Benzoin, lb	50	1 00
Catechu, Black, lb	9	20
Gamboge, powdered, lb	1 20	1 25
Guaiac, lb	50	1 00
Powdered, lb	90	95
Kino, true, lb	2 00	2 25
Myrrh, lb	$ 45	$ 48
Powdered, lb	55	60
Opium, lb	3 80	00
Powdered, lb	5 50	5 75
Scammony, pure Resin, lb	12 80	13 00
Shellac, lb	40	45
Bleached, lb	45	50
Spruce, true, lb	30	35
Tragacanth, flake, 1st, lb	85	90
Powdered, lb	1 10	1 25
Sorts, lb	55	70
Thus, lb	8	10
HERB, Althea, lb	27	35
Bitterwort, lb	36	40
Burdock, lb	16	18
Boneset, ozs, lb	15	17
Catnip, ozs, lb	17	20
Chiretta, lb	25	30
Coltsfoot, lb	20	38
Feverfew, ozs, lb	53	55
Grindelia robusta, lb	45	50
Horehound, ozs., lb	18	20
Jaborandi, lb	45	50
Lemon Balm, lb	38	40
Liverwort, German, lb	38	40
Lobelia, ozs, lb	15	20
Motherwort, ozs., lb	20	22
Mullein, German, lb	17	20
Pennyroyal, ozs., lb	18	20
Peppermint, ozs., lb	21	22
Rue, ozs., lb	30	35
Sage, ozs., lb	18	20
Spearmint, lb	21	25
Thyme, ozs., lb	18	20
Tansy, ozs., lb	15	18
Wormwood, oz	20	22
Yerba Santa, lb	38	44
HONEY, lb	13	15
HOPS, fresh, lb	20	25
INDIGO, Madras, lb	75	80
INSECT POWDER, lb	30	32
ISINGLASS, Brazil, lb	2 00	2 10
Russian, true, lb	6 00	6 50
LEAF, Aconite, lb	25	30
Bay, lb	18	20
Belladonna, lb	25	30
Buchu, long, lb	50	55
Short, lb	25	27
Coca, lb	35	40
Digitalis, lb	15	20
Eucalyptus, lb	18	20
Hyoscyamus	20	25
Matico, lb	70	75

Senna, Alexandria, lb	$ 25	$ 30
Tinnevelly, lb	15	25
Stramonium, lb	20	25
Uva Ursi, lb	15	18
LEECHES, Swedish, doz	1 00	1 10
LICORICE, Solazzi	45	50
Pignatelli	35	40
Grasso	30	35
Y & S—Sticks, 6 to 1 lb., per lb.	27	30
" Purity, 100 sticks in box	75	75
" Purity, 200 sticks in box	1 50	1 50
" Acme Pellets, 5 lb. tins	2 00	2 00
" Lozenges, 5 lb. tins	2 00	2 00
" Tar, Licorice, and Tolu, 5 lb. tins	2 00	2 00
LUPULIN, oz	30	35
LYCOPODIUM, lb	70	80
MACE, lb	1 20	1 25
MANNA, lb	1 60	1 75
Moss, Iceland, lb	9	10
Irish, lb	12	13
MUSK, Tonquin, oz	46 00	50 00
NUTGALLS, lb	21	25
Powdered, lb	25	30
NUTMEGS, lb	1 00	1 10
NUX VOMICA, lb	10	12
Powdered, lb	25	27
OAKUM, lb	12	15
OINTMENT, Merc., lb. ½ and ¼	70	75
Citrine, lb	45	50
PARALDEHYDE, oz	20	22
PEPPER, black, lb	12	13
Powdered, lb	15	16
PITCH, black, lb	3	4
Bergundy, true, lb	10	12
PLASTER, Calcined, bbl. cash	25	3 25
Adhesive, yd	12	13
Belladonna, lb	65	70
Galbanum Comp., lb	80	85
Lead, lb	25	30
POPPY HEADS, per 100	1 00	1 10
ROSIN, Common, lb	2½	3
White, lb	3½	4
RESORCIN, white, oz	25	30
ROCHELLE SALT, lb	28	30
ROOT, Aconite, lb	22	25
Althea, cut, lb	30	35
Belladonna, lb	25	30
Blood, lb	15	16
Bitter, lb	27	30
Blackberry, lb	15	18
Burdock, crushed, lb	18	20
Calamus, sliced, white, lb	20	25
Canada Snake, lb	30	35
Cohosh, black, lb	15	20
Colchicum, lb	40	45
Columbo, lb	20	22
Powdered, lb	25	30
Coltsfoot, lb	38	40
Comfrey, crushed, lb	20	25
Curcuma, powdered, lb	13	14
Dandelion, lb	15	18
Elecampane, lb	15	20
Galangal, lb	15	18
Gelsemium, lb	22	25
Gentian or Genitan, lb	9	10
Ground, lb	10	12
Powdered, lb	13	15
Ginger, African, lb	18	20
Po., lb	20	22
Jamaica, blchd., lb	27	30
Po., lb	30	35
Ginseng, lb	4 50	4 75
Golden Seal, lb	75	80
Gold Thread, lb	90	95
Hellebore, white, powd., lb	12	15
Indian Hemp	18	20
Ipecac, lb	1 75	2 00
Powdered, lb	2 00	2 25
Jalap, lb	55	60
Powdered, lb	60	65
Kava Kava, lb	40	90
Licorice, lb	12	15
Powdered, lb	13	15
Mandrake, lb	13	18
Masterwort, lb	16	40
Orris, Florentine, lb	30	35
Powdered, lb	40	45
Pareira Brava, true, lb	40	45
Pink, lb	40	45
Pleurisy, lb	30	35
Poke, lb	20	25
Prickly Ash, lb	15	18
Queen of the Meadow, lb	18	20
Rhatany, lb	20	30
Rhubarb, lb	75	2 50
Sarsaparilla, Hond, lb	40	45
Cut, lb	50	55
Senega, lb	55	65
Squill, lb	13	15
Stillingia, lb	22	25
Powdered, lb	25	27
Unicorn, lb	38	40
Valerian, English, lb. true	20	25
Virginia, Snake, lb	40	45
Yellow Dock, lb	15	18
RUM, Bay, gal	2 50	2 75
Essence, lb	3 00	3 25
SACCHARIN, oz	1 25	1 50
SEED, Anise, Italian, sifted, lb	13	15
Star, lb	35	40
Burdock, lb	30	35
Canary, bag or less, lb	5	6
Caraway, lb	10	13
Cardamom, lb	1 25	1 50
Celery	25	30
Colchicum	50	60
Coriander, lb	10	12
Cumin, lb	15	20
Fennel, lb	15	17
Fenugreek, powdered, lb	7	9
Flax, cleaned, lb	3½	4
Ground, lb	4	5
Hemp, lb	5	6
Mustard, white, lb	11	12
Powdered, lb	15	20
Pumpkin	25	30
Quince, lb	65	70
Rape, lb	8	9
Strophanthus, oz	50	55
Worm, lb	22	25
SEIDLITZ MIXTURE, lb	25	30
SOAP, Castile, Mottled, pure, lb	10	12
White, Conti's, lb	15	16
Powdered, lb	25	40
Green (Sapo Viridis), lb	25	25
SPERMACETI, lb	65	70
TURPENTINE, Chian, oz	75	80
Venice, lb	10	12
WAX, White, lb	50	75
Yellow	40	45
WOOD, Guaiac, rasped	5	6
Quassia chips, lb	10	12
Red Saunders, ground, lb	5	6
Santal, ground, lb	5	6

CHEMICALS.

ACID, Acetic, lb	12	13
Glacial, lb	45	50
Benzoic, English, oz	20	25
German, oz	10	12
Boracic, lb	13	14
Carbolic Crystals, lb	28	30
Calvert's No. 1, lb	2 10	2 15
No. 2, lb	1 35	1 40
Citric, lb	45	50
Gallic, oz	10	12
Hydrobromic, diluted, lb	30	35
Hydrocyanic, diluted, oz. bottles doz	1 50	1 60
Lactic, concentrated, oz	22	25
Muriatic, lb	3	5
Chem, pure, lb	18	20
Nitric, lb	10½	13
Chem. pure, lb	25	30
Oleic, purified, lb	75	80
Oxalic, lb	12	13
Phosphoric, glacial, lb	1 00	1 10
Dilute, lb	13	17
Pyrogallic, oz	30	35
Salicylic, white, lb	1 00	1 10
Sulphuric, carboy, lb	2½	2¾
Bottles, lb	5	6
Chem. pure, lb	18	20
Tannic, lb	80	85
Tartaric, powdered, lb	38	40
ACETANILID, lb	75	80
ACONITINE, grain	4	5
ALUM, cryst., lb	1¾	3
Powdered, lb	3	4
AMMONIA, Liquor, lb., .880	10	12
AMMONIUM, Bromide, lb	80	85
Carbonate, lb	14	15
Iodide, oz	35	40
Nitrate crystals, lb	40	45
Muriate, lb	12	16
Valerianate, oz	$ 55	$ 60
AMYL, Nitrite, oz	16	18
ANTINERVIN, oz	85	00
ANTIKAMNIA	1 30	1 35
ANTIPYRIN, oz	1 10	1 20
ARISTOL, oz	1 85	2 00
ARSENIC, Donovan's sol., lb	25	30
Fowler's sol., lb	10	13
Iodide, oz	50	55
White, lb	6	7
ATROPINE, Sulp. in ⅛ ozs. 80c., oz	6 00	6 25
BISMUTH, Ammonia-citrate, oz	35	40
Iodide, oz	50	55
Salicylate, oz	20	25
Subcarbonate, lb	1 80	2 00
Subnitrate, lb	1 50	1 60
BORAX, lb	7	8
Powdered, lb	8	9
BROMINE, oz	8	13
CADMIUM, Bromide, oz	20	25
Iodide, oz	45	50
CAFFEINE, oz	55	60
Citrate, oz	45	50
CALCIUM, Hypophosphite, lb	1 50	1 60
Iodide, oz	95	1 00
Phosphate, precip., lb	35	38
Sulphide, oz	5	6
CERIUM, Oxalate, oz	10	12
CHINOIDINE, oz	15	18
CHLORAL, Hydrate, lb	1 25	1 30
Croton, oz	75	80
CHLOROFORM, lb	60	1 90
CINCHONINE, sulphate, oz	25	30
CINCHONIDINE, Sulph., oz	15	20
COCAINE, Mur., oz	5 50	6 50
CODRIA, ½ oz	70	75
COLLODION, lb	65	70
COPPER, Sulph., (Blue Vitriol) lb.	6	7
Iodide, oz	65	70
COPPERAS, lb	1	3
DIURETIN, oz	1 60	1 65
ETHER, Acetic, lb	75	80
Sulphuric, lb	40	50
EXALGINE, oz	1 00	1 10
HYOSCYAMINE, Sulp., crystals, gr.	25	30
IODINE, lb	4 75	5 50
IODOFORM, lb	6 00	7 00
IODOL, oz	1 40	1 50
IRON, by Hydrogen	80	85
Carbonate, Precip., lb	15	16
Sacch., lb	30	35
Chloride, lb	45	55
Sol., lb	13	16
Citrate, U.S.P., lb	90	1 00
And Ammon., lb	70	75
And Quinine, lb	1 50	3 00
Quin. and Stry., oz	18	30
And Strychnine, oz	13	15
Dialyzed, Solution, lb	50	55
Ferrocyanide, lb	55	60
Hypophosphites, oz	25	30
Iodide, oz	40	45
Syrup, lb	40	45
Lactate, oz	5	6
Pernitrate, solution, lb	15	16
Phosphate scales, lb	1 25	1 30
Sulphate, pure, lb	7	9
Exsiccated, lb	8	10
And Potass. Tartrate, lb	80	85
And Ammon Tartrate, lb	80	85
LEAD, Acetate, white, lb	13	15
Carbonate, lb	7	8
Iodide, oz	35	40
Red, lb	7	9
LIME, Chlorinated, bulk, lb	4	5
In pakages, lb	6	7
LITHIUM, Bromide, oz	30	35
Carbonate, oz	30	35
Citrate, oz	25	30
Iodide, oz	50	55
Salicylate, oz	35	40
MAGNESIUM, Calc., lb	55	60
Carbonate, lb	18	20
Citrate, gran., lb	35	40
Sulph. (Epsom salt), lb	1¾	3
MANGANESE, Black Oxide, lb	5	7
MENTHOL, oz	55	66
MERCURY, lb	75	80
Ammon (White Precip.)	1 25	1 30
Chloride, Corrosive, lb	85	90
Calomel, lb	1 00	1 10
With Chalk, lb	60	65

and his large experience in instructing classes has won for him the encomiums of all who have been fortunate enough to receive instruction from him.

PARTIES DESIRING A DRUG BUSINESS IN Southern California will do well to correspond with T. W. LORD, Druggists' Broker, 131 North Union Ave., Los Angeles, California. References: All Wholesale Druggists, Citizens Bank, Broadway Bank, Los Angeles, California, and the California Board of Pharmacy.

WANTS, FOR SALE, ETC.

Advertisements under the head of Business Wanted, Situations Wanted, Situation Vacant, business for Sale, etc., will be inserted once free of charge. Answers must not be sent in care of this office unless postage stamps are forwarded to re-mail replies.

SITUATIONS WANTED.

SITUATION WANTED BY DRUG APPRENTICE, two years with W. Murchison. Write to W. MURCHISON, 116 Bay Street, Toronto.

WANTED—A SITUATION BY A DRUG CLERK, about seven years' experience in business; can furnish the best of references. Age 21 years; sober, industrious, and reliable. Address, A. L. ROBINSON, Brockville, Ont.

WANTED—SITUATION AS DRUG IMPROVER. Two years' experience; first-class references; wages no object. Address, "Pharmaceutist," Brantford, Ont.

FOR SALE.

FOR SALE—PHOTOGRAPHIC OUTFIT IN A1 condition; cost $30. Will sell cheap. For particulars, address FRANK H. WEBB, Petrolia, Ont.

Iodide, Proto, oz	$ 35	$ 40
Bin., oz	25	30
Oxide, Red, lb	1 15	1 20
Pill (Blue Mass), lb	70	75
MILK SUGAR, powdered, lb	30	35
MORPHINE, Acetate, oz	1 75	1 80
Muriate, oz	1 75	1 80
Sulphate, oz	1 80	1 85
PEPSIN, Saccharated, oz	35	40
PHENACETINE, oz	40	42
PILOCARPINE, Muriate, gram	35	38
PIPERIN, oz	1 00	1 10
PHOSPHORUS, lb	90	1 10
POTASSA, Caustic, white, lb	60	65
POTASSIUM, Acetate, lb	35	40
Bicarbonate, lb	15	17
Bichromate, lb	14	15
Bitrat (Cream Tart.), lb	29	30
Bromide, lb	65	70
Carbonate, lb	12	13
Chlorate, Eng., lb	18	20
Powdered, lb	20	22
Citrate, lb	70	75
Cyanide, lb	40	50
Hypophosphites, oz	10	12
Iodide, lb	4 00	4 10
Nitrate, gran, lb	8	10
Permanganate, lb	40	45
Prussiate, Red, lb	50	55
Yellow, lb	32	35
And Sod. Tartrate, lb	25	30
Sulphuret, lb	25	30
PROPYLAMINE, oz	35	40
QUININE, Sulph, bulk	35	38
Ozs., oz	38	42
QUINIDINE, Sulphate, ozs., oz	10	20
SALICIN, lb	75	4 00
SANTONIN, oz	20	22
SILVER, Nitrate, cryst, oz	90	1 00
Fused, oz	1 00	1 10
SODIUM, Acetate, lb	30	35
Bicarbonate, kgs., lb	2 75	3 00
Bromide, lb	65	70
Carbonate, lb	3	6
Hypophosphite, oz	10	12
Hyposulphite, lb	3	6
Iodide, oz	$ 40	$ 43
Salicylate, lb	1 00	1 10
Sulphate, lb	2	5
Sulphite, lb	8	10
SOMNAL, oz	85	00
SPIRIT NITRE, lb	35	65
STRONTIUM, Nitrate, lb	18	20
STRYCHNINE, crystals, oz	80	85
SULFONAL, oz	40	42
SULPHUR, Flowers of, lb	2½	4
Pure precipitated, lb	13	20
TARTAR EMETIC, lb	50	55
THYMOL (Thyme acid), oz	55	60
VERATRINE, oz	2 00	2 10
ZINC, Acetate, lb	70	75
Carbonate lb	25	30
Chloride, granular, oz	13	15
Iodide, oz	60	65
Oxide, lb	13	60
Sulphate, lb	9	11
Valerianate, oz	25	30

ESSENTIAL OILS.

OIL, Almond, bitter, oz	75	80
Sweet, lb	50	60
Amber, crude, lb	40	45
Rect'd, lb	60	65
Anise, lb	3 75	3 90
Bay, oz	50	60
Bergamot, lb	3 75	4 00
Cade, lb	90	1 00
Cajuput, lb	1 60	1 70
Capsicum, oz	60	65
Caraway, lb	2 75	3 00
Cassia, lb	3 30	3 50
Cedar	55	85
Cinnamon, Ceylon, oz	2 75	3 00
Citronelle, lb	80	85
Clove, lb	1 10	1 20
Copaiba, lb	1 75	2 00
Croton, lb	1 50	1 75
Cubeb, lb	2 50	3 00
Cumin, lb	5 50	6 00
Erigeron, oz	20	25
Eucalyptus, lb	1 50	1 75
Fenne, lb	1 60	1 75
Geranium, oz	$1 75	$1 80
Rose, lb	3 20	3 50
Juniper berries (English), lb	4 50	5 00
Wood, lb	70	75
Lavender, Chiris. Fleur, lb	3 00	3 50
Garden, lb	1 50	1 75
Lemon, lb	1 90	2 00
Lemongrass, lb	1 50	1 60
Mustard, Essential, oz	60	65
Neroli, oz	4 25	4 50
Orange, lb	2 75	3 00
Sweet, lb	2 75	3 00
Origanum, lb	65	70
Patchouli, oz	80	85
Pennyroyal, lb	2 50	2 75
Peppermint, lb	3 00	3 25
Pimento, lb	2 60	2 75
Rhodium, oz	80	85
Rose, oz	7 50	11 00
Rosemary, lb	70	75
Rue, oz	25	30
Sandalwood, lb	5 50	7 50
Sassafras, lb	75	80
Savin, lb	1 60	1 75
Spearmint, lb	3 75	4 00
Spruce, lb	65	70
Tansy, lb	4 25	4 50
Thyme, white, lb	1 80	1 90
Wintergreen, lb	2 75	3 00
Wormseed, lb	3 50	3 75
Wormwood, lb	4 25	4 50

FIXED OILS.

CASTOR, lb	8	10
COD LIVER, N.F., gal	2 25	2 30
Norwegian, gal	3 00	3 25
COTTONSEED, gal	1 10	1 20
LARD, gal	90	1 00
LINSEED, boiled, gal	62	65
Raw, gal	60	62
NEATSFOOT, gal	1 20	1 30
OLIVE, gal	1 20	1 25
Salad, gal	2 50	2 60
PALM, lb	12	13
SPERM, gal	1 35	1 40
TURPENTINE, gal	60	65

Drug Rports.

Canada.

*There is very little of special import*ance to note this mon h. Business has been quiet in most localities. Camphor is easier in price, but no serious decline is looked for; Glycerine is firm: Cream of Tartar also remains firm at previous quotations; Balsam Tolu is higher. Ergot remains very low: Gum Arabic promises to be dearer on account of the trouble in the Soudan; Castor Oil is firm in price; Linseed Oil somewhat easier; Cod Liver Oil, Norwegian, still advancing, essential oils are for the most part advanced in price.

England.

London, May 27th, 1896.

Business is reported as dull on all hands, and only a jobbing demand exists. cod-liver oil has turned the corner and bids fair to descend almost as rapidly as it ascended in price. The season is over for cod-liver oil in England, and citric and tartaric acids as ingredients of popular summer drinks are in request instead. Both of these are at high prices. Camphor has also come down with a run, manufacturers having reduced prices twice during the month. Saliene shows a substantial advance and atropine is slightly dearer. Saffron is dearer, but as the new crop is shortly expected, it is probably only a market scare. Great efforts have been made to put up gum acacia, but with only indifferent success. Ipecacuanha, jalap, and opium are unaltered, but the latter is reported firmer at Smyrna.

Magazines.

"THE PHOTOGRAM."—This excellent photographers' magazine for June is full of good things, being alike valuable to amateur and professional photographers. The astonishing success which it has met with since its initial number is due to the excellent quality of its contents, being always "up to date" and practical. Those of our readers who are interested in the art should at once become subscribers Address *The Photogram*, Limited, 6 Farringdon avenue, London, E.C., England. Subscription price is $1.10 per annum, post free.

Bret Harte's new story and Jerome K. Jerome's latest piece of fiction have both been secured by *The Ladies' Home Journal* for immediate publication. Jerome's story is called "Reginald Blake: Financier and Cad," and sketches an incident in fashionable London society. Bret Harte calls his story "The Indiscretion of Elsbeth," and pictures the romance of a young American who falls in love with a German princess, masquerading as a dairy maid.