

You will note from the table that differences between results obtained and the actual strength of the samples are as follows:

Method employed.	Sample No. 2.	Sample No. 3.
M. L. D. guinea pig method.....	2.8 to 5.0%	5.0 to 5.5%
M. L. D. frog method.....	9.0%	4.0%
One-hr. frog method.....	13.0 to 30.0%	3.0 to 21.8%
Cat method.....	5.1 to 13.0%	5.7 to 32.6%

The relative strength of the 3 samples was to be determined by comparing samples No. 2 and No. 3 with sample No. 1 which was called 100%.

Samples No. 2 and No. 3 were dilutions of No. 1 prepared so that No. 2 was 80 percent of the strength of No. 1, and No. 3 was 60 percent of the strength of No. 1. Each set of samples, however, was simply labeled No. 1, 2 and 3, the members of the committee having no knowledge of their relative activity.

RELATIVE MERITS OF THE DIFFERENT METHODS.

The above results would indicate, therefore, that the "M. L. D. Guinea Pig Method" and the "M. L. D. Frog Method" are about equally accurate, that both are more accurate than either the "One-Hour Frog Heart Method" or the "Cat Method," and that the "One-Hour Frog Heart Method" is more accurate than the "Cat Method."

In addition to giving data as to the relative accuracy of the various methods, the above experiments bring out another important point, *i. e.*, that the greatest variation between the results obtained and the actual strength of the preparation was only 32.6 percent.

When we consider the fact that tinctures of digitalis vary 300 to 400 percent in activity it is apparent that if properly conducted, digitalis and its allies can be satisfactorily assayed and standardized by either the "M. L. D. Guinea Pig or Frog Method," the "One-Hour Frog Method," or the "Cat Method."

In conclusion, your Committee would recommend that a copy of this report be forwarded to the chairman of the U. S. P. Revision Committee for consideration in connection with preparing the chapter on "Biologic Assays."

Your chairman would also recommend that, in view of the increase in the number of laboratories engaged in routine biologic assaying and the increased importance of this work, the membership of this Committee be increased from five to seven members.

Respectfully submitted,

PAUL S. PITTENGER, *Chairman.*

REPORT OF COMMITTEE ON U. S. PHARMACOPOEIA, AMERICAN PHARMACEUTICAL ASSOCIATION.*

BY L. F. KEBLER, CHAIRMAN.

Most of the members of this committee have made suggestions bearing on pharmacopoeial revision and feel that pending action by the Revision Committee they do not consider it desirable to discuss such matters publicly, which accounts for this brief report. The chairman believes, however, that attention might be directed to the advantage of a uniform general working temperature even though the U. S. Pharmacopoeial Convention adopted a recommendation of temperatures to be used by the Committee of Revision.

Those engaged in regulatory work, federal, state and municipal, as well as manufacturers are desirous of having written into the Pharmacopoeia the best available methods and up-to-date standards but what is wanted more are uniform methods of analysis so far as practicable. It is believed that a little thought and concession on the part of all concerned will make this possible. Simply because a certain temperature and routine has prevailed in a given industry for years ought not to stand in the way of yielding certain points for the common good. It may mean some inconvenience, confusion and money outlay, in the beginning for many, but in the end all will be benefited. At the 1921 meeting of the Association of Official Agricultural Chemists, some of these features were discussed and a committee appointed. In order to obtain the views of the association members the following questionnaire was sent out:

* Presented at the Cleveland meeting of the American Pharmaceutical Association, 1922.

Uniform Temperature for Making Determinations and a Vote on U. S. P. vs. A. O. A. C. Alcohol Tables. Washington, D. C., July 17, 1922.

At the last meeting of the A. O. A. C., criticism was made of the A. O. A. C. and U. S. P. alcohol tables. The sentiment appeared to be in favor of the A. O. A. C. tables. The chairman of the committee to cooperate with the U. S. Pharmacopoeial Committee of Revision, appointed at the last meeting, has discussed the question considerably with the conviction that a conclusion is not so easily arrived at. The committee itself is divided; two are in favor of the A. O. A. C. alcohol tables and two in favor of the U. S. P. alcohol tables. The chairman has not yet been called upon to cast his vote but favors the 20°/4° tables from a purely scientific point of view, yet trade conditions play an important part and must be considered.

In view of the unsatisfactory outcome so far, the chairman is submitting the matter to the A. O. A. C. membership and subscribers to the JOURNAL, for discussion, criticism and a vote.

It is conceded that the most convenient temperature for making routine observations is the laboratory temperature, but this temperature varies considerably from time to time and in different sections of the country. A compromise temperature should be agreed on.

The A. O. A. C. tables are based on the Bureau of Standards table 20°/4° and represent true specific gravities, whereas the U. S. P. tables are based on the Bureau of Standards tables 15.56°/15.56°, and are apparent specific gravities, barometer at 760 mm. with 50% air saturation. The Bureau of Standards, so far as your chairman has been able to ascertain, has not committed itself to any temperature for alcohol tables or for determining specific gravities of alcoholic mixtures. The Standards' Bureau has adopted 20° as the temperature for standardizing apparatus. 20°/4° is considered the more scientific, but 15.56°/15.56° is more largely used in the industries and by industrial chemists and 60° F./60° F. is written into the Internal Revenue law dealing with alcohol products. The Gauger's Manual tables are also based on this temperature.

The question of a uniform temperature for alcohol tables is important in case of percent by volume, but percentage of alcohol by weight is independent of temperature. It is true that specific gravities of alcoholics may be made at any temperature desired but uniformity is highly desirable and the alcohol tables should be based on a uniform temperature.

The A. O. A. C. Methods of Analysis provide that specific gravities, whenever practicable, be determined on the basis of 20°/4° and that Refractive Indices and Optical Rotations be made at 20° whenever practicable. This certainly makes for uniformity.

The U. S. Interdepartmental Committee on Paint Specification Standardizations (consisting of representatives of the War, Navy, Agricultural, Interior, Post Office, Treasury and Commerce Departments, the Railroad Administration, the Panama Canal, and the War Service Committee of the Paint Manufacturer's Association of the United States) has adopted 15.5°/15.5° for linseed oil and oil of turpentine.

U. S. Pharmacopoeial Optical Rotations are to be made at 25°; Refractive Indices at 20°; and Specific Gravities, unless otherwise provided, at 25°/25°. See page LII of the present Pharmacopoeia.

Mr. F. M. Farmer, chairman of the Subcommittee on Specific Gravity of the American Society for Testing Materials, writes:

"On the question of temperature there are so many standards already established in industry that it seems hopeless to get standardization on any one temperature. I am proposing therefore that our committee simply recommend that where there is no particular reason for adopting other values, the standard temperature of reference for the material be 25 deg. and for the water 4 deg."

In order that the committee may have your views, please answer the following questions, etc., and return in enclosed franked envelope.

1. Are you in favor of the A. O. A. C. alcohol tables? _____
 2. Are you in favor of the U. S. P. 9th Revision, alcohol tables? _____
 3. What single *Working Temperature* do you consider best for determining Specific Gravities, Optical Readings, Refractive Indices, Immersion Refractometer Readings, etc. _____
- Suggestions and comments.

L. F. KEBLER, *Chairman A. O. A. C. Committee on Pharmacopoeial Revision.*

BUREAU OF CHEMISTRY, WASHINGTON, D. C.

About 1300 questionnaires were sent out. Number of replies received August 11—317.

RESULTS OF VOTE ON ALCOHOL TABLES TO DATE.

In favor of A. O. A. C. Tables.....	240	In favor of U. S. P. 9th Revision....	33
Not in favor of.....	28	Not in favor of.....	154
Not voting.....	49	Not voting.....	130

RESULT OF VOTES ON BEST WORKING TEMPERATURE.

217 favor 20°
 67 " 25°
 13 " 15.5°
 20 not voting.

The vast majority of those voting favor the A. O. A. C. Alcohol Tables, but this vote may not be representative and therefore no conclusion is drawn at present.

The vote on question No. 3 covering the best temperature for making determinations is very definitely in favor of 20°, nearly 3 to 1, as against all other temperatures.

The question that naturally suggests itself is who is represented by these votes? A partial list of representative voters selected at random answers this question best.

PARTIAL LIST OF VOTES ON BEST WORKING TEMPERATURE.

ALLYN, L. B., Analytical Laboratories, Westfield, Mass.	20°
AMERICAN SUGAR REFINING CO., New York.	20
AMERICAN TOBACCO CO., New York.	20
ANTOINE CHRIS CO., New York, Essential Oils.	20
ARMOUR & CO., Chicago, Packers and Mfrs. of Foods & Drugs.	20
ASH, CHARLES S., San Francisco, Analytical Laboratory.	15.56
BARTLETT, J. M., Orono, Me., Exp. Station.	20
BROWNE, C. A., The New York Sugar Trade Lab., New York.	20
BUREAU OF CHEMISTRY, Washington, D. C.	20
BUREAU OF STANDARDS, Washington, D. C.	20
CALIFORNIA STATE BOARD OF HEALTH, Berkeley.	20
CAMPBELL CO., Joseph, Camden, N. J., Soup Mfrs.	25
DEPARTMENT OF HEALTH, Canada.	20
DOOLITTLE, R. E., Editor "A. O. A. C. Methods," Chicago.	20
GENERAL CHEMICAL CO., San Francisco Office, Chem. Mfrs.	20
GORTON PEW FISHERIES, Gloucester, Mass.	20
GREAT WESTERN SUGAR CO., Denver, Colo.	20
HEINZ, H. F. CO., Pittsburgh, Pickle Mfr.	20
HILTON, S. L., Druggist, Washington, D. C., Pres. Amer. Pharm. Assoc., 1922.	20
IOWA STATE DAIRY AND FOOD COMMISSION, Des Moines.	20
JOHNS, C. O., Standard Oil Co., New York.	20
LANGLEY & MICHAELS, San Francisco, Wholesale & Mfg. Druggists.	20
LEHN & FINK, New York, Wholesale and Mfg. Druggists.	20
LOOMIS, H. M., with Nat. Canners Assoc., Washington, D. C.	20
MASSACHUSETTS STATE BOARD OF HEALTH, Boston.	20
NATIONAL BISCUIT CO., Chicago.	20
PACIFIC AMER. FISHERIES LABORATORIES, South Bellingham, Washington.	15.5
PARKE, DAVIS & CO., Detroit, Mich., Pharmaceutical Mfrs.	25
POWERS, WEIGHTMAN & ROSENGARTEN, Philadelphia, Chem. Mfrs.	25
PROCTER & GAMBLE, Cincinnati, Soap Mfrs.	25
ROYSTER, F. S., Guano Co., Norfolk, Va., Fertilizer.	20
SEARS, ROEBUCK & CO., Chicago, Mail Order and Mfrs.	20
SHARP & DOHME, Baltimore, Pharmaceutical Mfrs.	20
SHERWIN WILLIAMS CO., Cleveland, Paint Mfrs.	20
SOLVAY PROCESS CO., Syracuse, N. Y., Heavy Chemical Mfrs.	20
SPRAGUE WARNER & CO., Chicago, Wholesale & Food Mfrs.	25
UNITED DRUG CO., Boston, Retailers and Drug Mfrs.	20
UNIVERSITY OF MONTREAL.	20
VEITCH, F. P., Pres. A. O. A. C.	20
WARNER, WM. R. & CO., New York, Drug Mfrs.	25
WOODMAN, A. G., Massachusetts Institute Technology, Boston.	20

The vote of the above gives practically the same ratio as the entire vote and is 3 to 1 in favor of 20 as against all other temperatures.

In order to secure a larger and possibly a more representative vote it is suggested that all readers of this article, interested in establishing a uniform temperature for making observations, etc., send their vote on the three questions asked to the chairman whose address is given above.

In order to give an idea as to the nature of the replies a few representative ones are given.

POWERS-WEIGHTMAN-ROSENGARTEN Co.
Manufacturing Chemists.

PHILADELPHIA, PA.
August 10, 1922.

PROF. L. F. KEBLER,
CHAIRMAN A. O. A. C. COMM. ON PHARMACOPOEIAL REVISION,
U. S. DEPT. OF AGRICULTURE, WASHINGTON, D. C.

DEAR SIR:

In reply to the questions contained in your circular letter of July 17th, 1922, entitled "Uniform Temperature for Making Determinations and a vote on U. S. P. vs. A. O. A. C. Alcohol Tables, we vote:

1. Are you in favor of the A. O. A. C. alcohol tables? No.
2. Are you in favor of the U. S. P. 9th Revision alcohol tables? Yes.

3. What single working temperature do you consider best for determining Specific Gravities, Optical Readings, Refractive Indices, Immersion Refractometer Readings, etc? 25° C.

Our reason for favoring the U. S. P. alcohol tables is because these tables are used in the industries as well as by the government. Specific gravity being only a relative constant the slight scientific advantage of the 20/4 standard is not sufficient to outweigh the practical advantage of the U. S. P. table.

Our preference for a single working temperature of 25° C. is because (1) we believe this temperature to be the average laboratory temperature in the United States, and (2) it is a well known general principle that it is mechanically easier and more economical to raise temperatures than to reduce.

Very truly yours,

POWERS, WRIGHTMAN-ROSENGARTEN CO.

Joseph Rosin, *Chief Chemist.*

LOGAN-JOHNSON, LTD.
Jams, Jellies, Crushed Fruit and Syrups,

201 STATE STREET,
BOSTON, August 8, 1922.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF CHEMISTRY,
WASHINGTON, D. C.

ATTENTION MR. L. F. KEBLER.

DEAR SIR:

In compliance with your recent request as to personal opinion about the A. O. A. C. and U. S. P. Alcohol Tables, I should like to cast my vote as follows:

(1) I am in favor of the U. S. P. 9th Revision, Alcohol Tables.

(2) I favor 20° as a working temperature for Optical Rotations and Refractive Indices and 15.6°/15.6° for Specific Gravities.

Yours very truly,

LOGAN-JOHNSON, LTD.

Samuel M. Pollack, *Chemist.*

F. S. ROYSTER GUANO COMPANY.

NORFOLK, VA., July 25, 1922.

DR. L. F. KEBLER,
WASHINGTON, D. C.

DEAR DR. KEBLER:

Your communication in regard to the temperature to be used in the alcoholic specific gravity tables and also in regard to temperature to be used in determining the specific gravity in other materials has been received. I have read what you have to say with much interest and am sorry that there is so much diversity of opinion in regard to the temperature basis for specific gravity. I have talked the matter over with my assistants in this laboratory and we all agree that the temperature of 20° would be decidedly preferable to a temperature of 15.56°. I would much prefer having the alcohol table based on a standard of 20°/4°. I think we should base our determinations on the true specific gravity and not on any thing else no matter if it may be more convenient at times. The temperature of 20° is certainly more convenient than the temperature of 15.56° and I hope very much the committee will adopt the present table of the Bureau of Standards.

I vote in favor of the present A. O. A. C. tables. I also vote for temperature of 20° for determining Specific Gravities, Optical Readings, Refractive Indices, Immersion Refractometer Readings, etc.

Yours very truly,

F. S. ROYSTER GUANO COMPANY,

A. W. Magnam, *Chief Chemist.*

University of Montreal.

COPY
FACULTE DES SCIENCES

MONTREAL, Aug. 2, 1922.

MR. L. F. KEBLER,
WASHINGTON, D. C.

DEAR SIR:

I beg to acknowledge receipt of your circular concerning the adoption of a standard temperature for determining Specific Gravities, Optical Readings, Refractive Indices, Immersion Refractometer Readings; and wish to answer as follows:

1. Are you in favor of the A. O. A. C. alcohol tables? Yes.

2. Are you in favor of the U. S. P. 9th Revision, alcohol tables? No.

3. What single *Working Temperature* do you consider best for determining Specific Gravities, Optical Readings, Refractive Indices, Immersion Refractometer Readings, etc.? 20° C.

Suggestions and comments: Ten years' laboratory experience have convinced me that determinations at 15° C. are not practical; we have therefore had all our glassware stamped at 20° C. The temperature of our laboratory has never been lower than 19° and it is oftener at 22°. During the summer it is 25°. The result is, that when we wish to cool a picnometer at 15° drops of water settle on its sides and render weighing so difficult that, until the alcohol tables appeared, A. O. A. C. at 20°, we much preferred using the certified French alcoholometers. These alcoholometers, in fact, allow of specific gravities being made at the ambient temperature if used with the tables of correction prepared for that purpose. As this is the official French method, we have always considered that it is as accurate as the picnometer method at 15°/15°. In my opinion the greatest service that could

be rendered to chemists would be the establishing of two tables, one at 20° and one at 25°, with relation to the summer season (June to September), the chemist indicating in his report the table he has used. These might be completed by formulas which would allow us to refer determinations made at the ambient temperature to the nearest table.

Yours very truly,
 GEORGES BARIL, M.D., F.C.T.C.,
Secretary of the Faculty of Pure Science.

COPY
 THE GREAT WESTERN SUGAR COMPANY,
 DENVER, COLORADO.

July 27, 1922.

U. S. DEPARTMENT OF AGRICULTURE,
 BUREAU OF CHEMISTRY,
 WASHINGTON, D. C.

ATTENTION L. F. KEBLER.

GENTLEMEN:

The enclosed inquiry regarding uniform temperature for alcohol determinations has come to us. While I am not a member of the A. O. A. C., I assume you may wish to obtain opinions outside of your membership and I have accordingly answered the questions in the enclosure.

One can hardly deny that there has been a tendency in recent years toward 20° C., as a standard temperature. In fact this has become the uniform basis for all sugar chemistry work. The single exception that I can recall is that we still sell molasses on the basis of Baume at 100° F. in accordance with trade practice. As between adopting a uniform temperature and following the varying standards of trade practice I prefer the former even if it is sometimes a monumental undertaking to change a trade practice.

Yours very truly,
 (Signed) S. J. OSBORNE,
General Chemist.

COPY
 DEPARTMENT OF COMMERCE,
 BUREAU OF STANDARDS,
 WASHINGTON.

July 28, 1922.

MR. L. F. KEBLER, CHAIRMAN,
 A. O. A. C. COMMITTEE ON PHARMACOPOEIAL REVISION,
 BUREAU OF CHEMISTRY,
 WASHINGTON, D. C.

Subject: Alcohol Tables.

DEAR SIR:

1. Your request of July 17 for an expression of opinion on the question of alcohol tables and standard temperatures of determinations received.

2. The Bureau is of the opinion that the A. O. A. C. tables are preferable on account of the temperature basis on which the specific gravities are given. Twenty degrees centigrade is, in our opinion, a very satisfactory temperature for density work in general and we would recommend that temperature in reply to your last question.

Respectfully,
 (Signed) S. W. STRATTON,
Director.

I have always felt that 20° C. is more nearly the average laboratory temperature the year around than either 15.56° or 25°—my experience for more than 20 years confirms it, and there will be less corrections to be made using 20° than at any other temperature. I therefore favor 20° C. as a working temperature.

Sincerely,
 (Signed) S. L. HILTON.
 Washington, D. C.

REPORT OF COMMITTEE ON NATIONAL LEGISLATION,* AMERICAN PHARMACEUTICAL ASSOCIATION.

Legislation the past year was confined largely to alcohol and narcotics although some few odds and ends showed their heads above the surface. Let me touch upon the latter first.

H. R. Resolution 229 introduced by Mr. Kahn sought to secure the absolute suppression of manufacture of opium, cocaine and their derivatives and preparations by securing an inter-

* This report was received and the report and resolutions were adopted. C. L. Eddy said that attention should be called to the growing tendency in the United States toward a bureaucratic form of government. Mr. Eddy referred to a law in New York state of this order which was abolished through the cooperative efforts of pharmacists and physicians. He also referred to a statement made recently in Congress—that "one in fifteen people is an employee of the Government; and these people who hold their jobs are making laws for our damnation."