Recommendation on a Uniform Bilirubin Standard*

The management of hyperbilirubinemia in the newborn infant by exchange transfusion has been hampered by failure to agree consistently upon analytic data of bilirubin concentrations (Mather, A., Pediatrics 26:350, 1960). In order to eliminate one of the variables, a committee composed of representatives from the American Academy of Pediatrics, the College of American Pathologists, the American Association of Clinical Chemists, and the National Institutes of Health, recommends the following procedures for the establishment of a uniform bilirubin standard.

Acceptable Bilirubin

Since there are at present no generally accepted criteria of purity of bilirubin preparations and thus no basis for the definition of a primary bilirubin standard at this time, the Committee has had tentatively to accept the principle that increasing molar absorptivity at bilirubin's maximum in the visible region is an index of purity in the sample. On this basis the Committee has examined six highly purified commercial and two privately purified crystalline preparations selected as giving the highest and most consistent molar absorptivity in chloroform at 453 μm. The results of this examination in triplicate by three separate laboratories give a 1-cm. molar absorptivity of 60,700 ± 800 (mean ± standard deviation) at 453 μm in chloroform at 25°C. The Committee recommends as acceptable a bilirubin giving an absorptivity between 59,100 and 62,300.

Standard Solutions for the Assay of Serum Bilirubin

In view of widely reported observations that serum proteins may affect the absorptivities of bilirubin and azobilirubin, and of the desirability of calibration

*Developed jointly by representatives of the American Academy of Pediatrics, the College of American Pathologists, the American Association of Clinical Chemists, and the National Institutes of Health. The American Association of Clinical Chemists was represented by a Subcommittee on Bilirubin of the Standards Committee. The committee consists of Frank Ibbott, Alan Mather, Willard Faulkner, Samuel Meites, and Richard Henry, Chairman. The College of American Pathologists (Prudential Plaza, Chicago 1, Ill.), is willing to certify bilirubin preparations as "acceptable" as defined in this recommendation.
of assay procedures under conditions as much as possible like those with which the analyzed specimen is to be handled, the Committee recommends that standard solutions for the assay of bilirubin in serum be made up in an aqueous protein medium. The choice obviously is between the use of artificially prepared buffered serum protein solutions and the use of pooled serum as the medium for the preparation and dilution of standard solutions. Although both have disadvantages, the latter was selected on the basis of its ready availability and probable superiority.

An "acceptable standard bilirubin solution" is prepared as follows: An accurately weighed quantity of an "acceptable bilirubin" is dissolved completely and as quickly as possible (less than 5 min.) in subdued light at room temperature in M/10 sodium carbonate solution, the quantity of the latter being selected to constitute 2 per cent of the final volume of the prepared standard. The clear red solution is immediately diluted with an "acceptable serum diluent" to a final volume selected to give a desired final concentration of not less than 5 mg./100 ml. An "acceptable serum diluent," to be used both in preparation of this standard and in any subsequent dilutions for calibration purposes is defined tentatively as pooled serum having an absorbance of less than 0.100 at 414 m&mu; and 0.040 at 460 m&mu; at a dilution of 1:25 in 0.85% NaCl.

For calibration purposes, a concentrated standard may be diluted with the same "serum diluent" to appropriate concentrations covering adequately the range for which the assay procedure is designed. Standard and subdilutions as well as the "serum diluent" are to be treated in an analytical procedure in a manner identical with that for unknown serum specimens, and corrections for the color contributed by the serum diluent must be made. The absorbance (A) of a standard (read against its own undiazotized blank in any diazo procedure) is A&subscript{s}. To correct for that part of A&subscript{s} contributed by the serum diluent itself, the absorbance of serum diluent alone (read against its own blank in diazo procedures) constitutes A&subscript{b}. The "corrected A&subscript{s},"—i.e., the absorbance equivalent to the weighed-in standard concentration, is A&subscript{s} - A&subscript{b}. If handled in the above manner, the nominal concentration of the standard may be taken as that of the weighed-in bilirubin.

Packaging and Preservation

Standards prepared in the above manner are not stable preparations and may be preserved for about a week at -20°C. For any commercial packaging of standards so prepared, suitable aliquots are to be lyophilized and sealed in ampoules or bottles. Shelf life of such preparations must be established and, if found to be stable for only a limited time, the expiration date must be indicated on the container label (current indications are that stability of such lyophilized material cannot be assumed). It is recommended that the lyophilized preparations be kept under refrigeration and that a reconstituted standard be used
within 2 hours. The stated concentrations of such reconstituted standards must be based upon (1) the sum of the added bilirubin and that calculated to be contributed by the serum diluent, and (2) a carefully determined correction derived from the ratio of the prelyophilized and reconstituted volumes.

**Calibration Using Preserved Standards**

Because of the large variations obtained among methods, any assay procedure should be calibrated over the concentration range for which it yields linear results. With methods employing aqueous dilution of highly jaundiced sera, a suitable standard must first be prepared and subdiluted in serum to appropriate concentrations, and then diluted with water in a manner identical with that used for the specimens. For procedures which bring the concentration into the linear range by the use of micro aliquots, the various subdilutions in serum are sampled directly.

For preserved standards which are to be diluted in a “serum diluent” which may vary significantly from the original diluent, or for subdilutions from reconstituted lyophilized standards, the nominal (weighed-in) equivalent concentration cannot be used, and the value for total concentration—i.e., the sum of weighed and diluent bilirubin—must be used as the basis for calculation. Under these conditions, each dilution of standard in serum must be corrected for the corresponding dilution of the serum diluent: a 1:4 dilution of standard in serum must be corrected by 3/4 of the determined serum bilirubin absorbance, a 1:2 dilution by 1/2 the serum absorbance, and so on.

With regard to the problem of standardization of measurements of conjugated bilirubins in serum, the Committee cannot provide any recommendation at the present time.

**News Section**

**Minutes of the AACC Executive Committee Meeting, April 1962**

A meeting of the Executive Committee was called to order on Apr. 16, 1962. Present were D. Seligson (President), M. Reiner (President-Elect), M. Kaser (Treasurer), R. L. Dryer (Secretary), and A. G. Ware (Past President) as national officers. Present as committee chairmen were A. Haine-line (Membership), H. D. Appleton (Chairman, Board of Editors), R. MacDonald (Legislation), G. Lan-chantin (Southern California Section, for the national annual meeting). Delegates-at-large included M. M. Friedman, D. G. Remp, and H. F. Weisberg (alternate). Present as local section representatives were E. W. Bermes (Chicago), B. H. Armbrrecht (Capital), R. J. Henry (Southern California), S. M. Sax (Pittsburgh), M. Horowitz (Ohio Valley), M. Murray (Upstate New York), R. A. Nevé
(Puget Sound), R. S. Melville (Midwest), W. Faulkner (Cleveland), E. Andrews (Michigan), J. Elliott (Texas), W. G. Foster (Philadelphia), J. DiGiorgio (Northeastern), L. B. Dotti (Metropolitan New York) and D. O. Vloedman (Miami, Fla.).

The Secretary announced that he had received a petition for charter of a new local section from an interested group of members in the state of Florida. He indicated that all constitutional stipulations had been met and recommended that the charter be granted. The new section would be known as the Florida section, and its limits would be coincident with the legal boundaries of that state. Brief discussion of the question followed, after which the charter was approved. It has been the custom of this Committee to formally seat the delegate of new sections at once, but in this instance, Mr. Vloedman, whose election to membership is not complete, was invited to sit with the Committee as a nonvoting guest. It was so ordered.

MacDonald reported on recent activities of the legislation committee, which have increased in scope and complexity. He indicated that legislation of direct concern or interest to chemists has been considered in New York, Oregon, Massachusetts, Connecticut, Pennsylvania, and the City of New York. The greatest activity has been in New York, where several bills were introduced and considered by the legislature of that state. This Association, together with other interested groups, supported a proposal known as the Saverese-Marchi bill and opposed one known as the Mintz-Rice bill. In Oregon, the fate of a petition circulated originally by a group of technologists favoring licensure is unknown. There were numerous objectionable features to this petition, which did not receive the endorsement of the legislation committee. A bill presented to the Massachusetts legislature purported to be a copy of a model bill first constructed by John Reinhold, but the committee felt that it was a very inadequate simulation in which many of the goals of this Association were seriously weakened by the omissions and departures from the original model. It is understood that this bill was not passed. In Connecticut a bill was passed under the heading of a public health code containing a section governing laboratory operation. The committee feels that its provisions for regulation are vague, contradictory, and redundant. In Pennsylvania, a bill written by John Reinhold has been approved, and in New York City a draft of a new city health code has been formulated.

Because of the increased legislative activity in fields touching upon our interests, and because of questions which may arise in the minds of our members, MacDonald requested clarification of our policies in the field of legislation. A summary of the ensuing discussion follows: Under the terms of our charter and the provisions of the Federal Internal Revenue Code, our position with respect to legislation is an advisory one. We will respond to any requests for advice concerning legislation, provided these come from members of legislative bod-
ies and provided these requests are in writing. Certain model bills have been prepared and are available. All members are urged to bring matters of legislative import to the attention of the committee, which will serve as an advisory body to the national officers of the Association. In this manner the committee can serve as a clearing house to all members as well as to the Association as a whole. Statements of policy or opinion in specific instances of legislation will be issued only by the national officers, with the consultation and advice of the committee. The legislation committee was complimented on its efforts, and promised any necessary financial support.

A brief interim financial report was presented by Kaser, who indicated that our present membership level is very close to 1000, with a corresponding income from membership dues. In addition, we have been receiving substantial royalty income from the Journal and from the *Standard Methods* series. She indicated that with the assistance of a professional accountant a complete review of accounting and financial procedures has been accomplished.

The Finance Committee presented two recommendations concerning possible uses of some surplus funds. One involved the establishment of traveling lectureships, whereby designated individuals would tour a certain number of our local sections to give lectures and hold seminars or demonstrations of interest. Another possibility would be to furnish such speakers to other scientific groups, including medical societies, technological societies, and so forth. The Committee felt that such a program would serve to publicize the activity of the Association and its membership, and that it would also assist those sections which have difficulty in planning local programs. No final action was taken on this proposal. The second recommendation was that some monies be used for scholarship purposes to augment an offer formally made by the General Diagnostics Division of Warner-Chilcott Laboratories. Unofficial negotiations with representatives of the company have been carried on for some time, and are not yet complete. The general sense of the discussions with the donor company was discussed by the Secretary, who indicated that they would leave scientific control of the program essentially in the hands of the Association, but that the stipends under consideration might not be enough to support without supplementation either a graduate student or a postdoctoral fellow at prevalent university levels. The Finance Committee was authorized to accept the offer of the donor and to frame a specific proposal for later review.

Appleton reviewed the progress of *Clinical Chemistry*, which is now distributed to 63 countries. He indicated that the terms of Reinhold and Sobotka as members of the Editorial Board have expired. Announcement of their successors will be made separately. Publications delays have been minimized and publication allowances to authors have been increased by several means.

MacDonald spoke for the Intersociety Committee, on which he represents
this Association. The Intersociety Committee is a group originally designed to work with the American Medical Association in areas of mutual professional interest. Changes in attitude and policy of the American Medical Association make the future usefulness of the Intersociety Committee an open question, but MacDonald recommended that it should be supported in the hope that the prospects may improve. It was so ordered.

Seligson reported for the Standards Committee, indicating that previous decisions to publicize critical reports of any commercial kit or preparations of inferior quality have been activated. Two reports of this sort have been prepared and are in the process of publication. Any member who has evidence of such faulty merchandise should bring these to the attention of the Standards Committee, together with pertinent data, so that some action may be taken. He also announced that the cooperative committee on bilirubin standardization has made some progress. R. J. Henry is our representative at the co-operative committee, which is jointly sponsored by the American Academy of Pediatrics, the National Institutes of Health, the College of Pathologists, and this Association. Henry briefly reviewed the goals of this group, and indicated that progress was slow.

Seligson then stated that a similar subcommittee of the Standards Committee has been asked to look into the problems of cholesterol standardization; this project is being organized by N. Radin, of Rochester.

Hainline, as head of the Membership Committee, explained past discussions of membership standards, and recaptured the steps by which a new statement of membership requirements had been formulated. He then placed in the record a final form of the proposed constitutional revision (printed separately). A motion to accept formally the proposed revision was passed.

A brief preliminary report of the organization of the forthcoming annual meeting, Aug. 27-30, 1962, was presented by Lanchantin. He indicated that a program of some 54 papers was being planned, with a projected attendance of about 167 members, in terms of registrations already in hand. Approximately 50 exhibitors have reserved space. A generous amount of time has been allotted for nonscientific activities, and the host section plans a number of interesting ways in which this may be spent. Lanchantin urged that those planning to attend avoid arriving by railroad, owing to local travel problems. Those who must go by train could avoid delay by advising the local committee in advance. Complete details will be announced separately.

MacDonald and Remp spoke briefly concerning the International Congress of Clinical Chemistry scheduled for Detroit in 1963. They announced that four sessions are possible over a period of 5 days. Four symposia are also planned. Scientific programs are being planned by Sanford Jackson and Bennie Zak. A deadline of Mar. 1, 1963, for papers is contemplated; more
details will be forthcoming at an early date.

Foster formally presented an invitation on behalf of the Philadelphia section, which invites the Association to consider it as the site for an annual meeting. The invitation was supported by the municipal and civic leaders of Philadelphia. Note was taken of similar invitations outstanding from the Northeastern, Capital, and Metropolitan New York sections. It was voted to postpone final decision until the August meeting.

Dryer spoke briefly on dissatisfaction with the terminology employed in the revised version of Chemical Abstracts. He described continuing efforts to explain the attitudes of this Association to the staff of Chemical Abstracts. He also reviewed efforts of the American Chemical Society Committee on Clinical Chemistry. He indicated that some progress in organizing a new group, representative of the scientific disciplines related to the health sciences, was slow, but that after a lull, activity was again evident. Further details will be presented in August.

Henry introduced several questions which had been raised by the members of the Southern California section. These dealt with the definition of terms used in describing qualifications for membership, and with the question of ethical grounds as a basis for denying a membership application. It was the consensus that the membership committee screening process adequately selected candidates, especially if the supporting letters were carefully scrutinized. Questions of an ethical nature could also be referred to the ethics committee should the need arise.

Henry then introduced a proposal for an amendment to the constitution by which the machinery for amending that document would be changed from approval by poll of the membership present at a national meeting to approval by mail vote of the entire membership. Considerable discussion ensued on various aspects of this proposal. Henry urged that the changes he proposed were needed, and stated that the reason for bringing up the issue at the present meeting was to insure that the proposal could be adopted at the next annual meeting. Although the Executive Committee accepted the principle of the proposal there was some real doubt of the urgency of the need as expressed, particularly since the Constitutional Review Committee has been charged with the task of complete revision of the constitution and by-laws.

Henry then introduced a petition signed by more than 5 per cent of the total membership in good standing, which, according to the constitution, is a sufficient mechanism for bringing the question to a vote. The secretary stated that he would proceed with the matter accordingly.

Armbracht proposed the establishment of a subcommittee of the Standards Committee to study the question of “Official Test Methods” as distinct from the general selection included in the Standard Methods series. He proposed that there was a need for methods which had an official sanction com-
parable to that of the A.O.A.C. or similar compilations. The matter was de-
ferred.

No further business was introduced, and the meeting was adjourned.

Minutes of the Membership Meeting

A brief membership meeting was held on Apr. 17, 1962. In the absence of the President, the presiding officer was the President-elect, Dr. Reiner.

The secretary read the minutes of the Executive Committee meeting and answered several questions regarding that meeting. He asked Dr. Lanchan-
tin to speak in more detail to the member present concerning the detailed plans for the California meeting.

The secretary then pointed out that owing to purely mechanical problems it might not be possible to have the minutes of the Executive Committee in the hands of the membership before the deadline for circulation of the constitu-
tional petition introduced by Dr. Henry had been passed. It was moved by Dr. Dubowski that the secretary be empowered, if necessary, to include a brief synopsis of the background for this petition along with the statement of the change desired. Some discussion of the propriety of this ensued. Sev-
eral members of the Southern California section felt that this action by the secretary would be prejudicial. Dubowski's motion was passed by vote.

A brief announcement concerning the International Congress of Clinical Chemistry to be held in Detroit in 1963 was discussed. Reference to a similar Congress to be held in 1966 somewhere in Europe was introduced, but no specific action was requested pending receipt of further details.

No other business was introduced, and the meeting then adjourned.

Proposed Amendment to the Constitution of the American Association of Clinical Chemists

The following changes in Article III shall become effective Sept. 1, 1962, and shall apply only to applications for membership received by the Na-
tional Membership Committee subsequent to that date.

1. The sentence in Article III which reads: "other persons who are inter-
ested in the field of clinical chemistry and who are engaged in scientific ac-

tivities in clinical chemistry may be admitted to membership as associate members" shall be deleted.

2. The following sentence shall be added to Article III: "Those persons

with insufficient experience as clinical chemists but who meet all the other qualifications for membership may be admitted as associate members."

3. The following sentence shall be added to Article III: "Other persons

who are interested in the field of clinical chemistry and are engaged in sci-

tentific activities in clinical chemistry may be admitted as affiliate members."

4. The final sentence of Article III shall be amended to read: "Members

and associate members shall have the sole right to vote and hold office."

5. The first sentence of Article III
shall be amended to read: "This Association shall consist of members (also called full members) associate members, affiliate members and honorary members."

6. Members who have been certified by the American Board of Clinical Chemistry shall be recognized as fellows.

Constitutional Amendment

A petition signed by more than 5 per cent of the total membership in good standing was presented to the April 1962 meeting of the Executive Committee. The validity of the signatures and membership status of the signatories shows it to be in proper order.

According to Article XIV, Section 2 of our constitution, this petition must be presented to the membership 60 days before the stated annual meeting for final vote at that time. For those interested, the complete constitution appeared in CLINICAL CHEMISTRY, Vol. 4, p. 81 (1958).

Proposed Amendment

Article XIV shall be amended by deleting the last paragraph, beginning "Proposed amendments shall be published at least sixty days before they are voted upon by the membership at a Stated Annual Meeting. An amendment shall become effective upon receiving the affirmative vote of two-thirds of the members voting at the Stated Annual Meeting," and substituting the following paragraph:

The vote on each proposed amendment shall be by letter ballots, mailed promptly to all voting members in good standing and returned within 30 days after the date of mailing, when they shall be opened and counted. A proposed amendment shall become effective upon receiving a two-thirds affirmative vote of all valid ballots.

Registry of Medical Technologists

For some time past there have been questions concerning the precise policies of the Registry of Medical Technologists of the American Society of Clinical Pathologists. Registrants of this group have been required to submit annual renewal applications certifying that they are employed in a qualified laboratory. These forms have also required the countersignature of an employing physician, presumably a pathologist, since it is a basic tenet of the Registry that those registered under its auspices should be employed only in laboratories supervised by pathologists.

It is nevertheless a matter of record that in some instances the Registry has accepted countersignatures of "qualified non-medical specialists," including signatures of some Fellows of this Association, particularly in cases where they were personally responsible for employment and supervision of the registrants. This policy has been followed in a vacillating manner; recently renewal forms have been rejected because they were not validated by a physician, even though they were countersigned by some whose signatures
had previously been accepted.

Representatives of the Association pointed out to the Board of Registry the patent absurdity of requiring signatures from physicians who in some instances could not even identify the registrant, much less vouch for the quality or conditions of their work. They also offered to make available to the Registry a list of Fellows of this Association or a list of chemists certified by the American Board of Clinical Chemistry, and suggested some degree of cooperation between the groups involved to preserve the concept of countersignature by a responsible professional person.

The Association recently was informed by the Registrar of the Board of Registry of a change in policy to the effect that: "... only one signature is going to be necessary in the future for registered medical technologists. This is the signature of the registrant himself."

This is a long and unfortunate step backward from cooperation and recognition by the Board of Registry of professional qualifications of many expert nonphysicians, but at least it does away with the requirement of what, in the instances cited above, was a sham performance demanded of pathologists and technologists and hardly in keeping with the standards and ethics to which both groups subscribed.

Section News
Southern California

The following papers and meetings constituted the scientific program (arranged by Dr. S. I. Dulkin, Program Chairman) of the past season:


"Regulation of Iron Metabolism," Paul D. Saltman, Ph.D., University of Southern California (Jan. 2, 1962).

Joint meeting on the AutoAnalyzer, sponsored by Technicon Instrument Corporation (Feb. 6, 1962).

"Thyroid Function Tests," Boris Catz, M.D., University of Southern California School of Medicine (Mar. 6, 1962).


Research Symposium: "Transverse Gradient Electrophoresis," Clyde A. Dubbs, Ph.D., Saint John's Hospital Research Foundation (Santa Monica); "Double Isotope Derivative Technique (Aldosterone Assay)," Harold G. Loeb, Ph.D., Bio-Science Laboratories; "Micro-Sedimentation Rate Procedures," Benjamin Bloom, Mont Royal Memorial Hospital (Los Angeles); and "Observations on the Lubran Method for Barbiturate Determination," Clifford B. Walberg, Ph.D., Los Angeles County General Hospital (May 1, 1962).

Philadelphia Section

Chemist Clinic No. 18 was held Tuesday, May 22 at 4:00 p.m., with Dr.
Frederick T. Schaefer, Adams Laboratories, Philadelphia, as moderator; the subject was “Serum Proteins.”

On Tuesday, May 22, at 7:45 p.m. a scientific meeting was held. Dr. Martin Gold, Department of Physiology, Hahnemann Medical College, spoke on the topic “Introduction of the Theory and Practice of Gas-Liquid Chromatography.” Dr. John J. Spitzer, also from Hahnemann Medical College, spoke on the topic “Studies of Free Fatty Acid Transport using Gas-liquid Chromatography.”

Chicago Section

A meeting of this section was held on Friday, May 18, at 7:00 p.m. A symposium was presented on “Toxicology in the Clinical Laboratory” Joseph R. Christian spoke on “Clinical Aspects of Poisoning”; Eleanor Berman, “Laboratory Identification of Certain Poisons”; Martin E. Hanke, “Estimation of Arsenic in Biological Materials”; and Robert V. Blanke, “Legal Aspects of Chemical Tests.”

Dr. Christian discussed the specific signs and symptoms suggestive of poisoning, first aid measures, support of essential organ function, and identification and removal of poisonous substances.

Dr. Berman described pharmacological and toxic effects of various drugs and poisons, and their identification and quantitative estimation.

Dr. Hanke described an original method for the quantitative estimation of arsenic by benzene extraction and colorimetry with molybdate, and its application to urine and other biological material.

Dr. Blanke discussed problems in the detection of rapidly metabolized substances like alcohol, and also of poisons present in minute quantities.

Midwest Section

The Midwest Section of AACC met in Rochester, Minn., May 18, 1962, with Dr. Harold L. Mason and his staff as hosts. In the afternoon there were tours of the new Mayo Clinic, followed by detailed visits to clinical and experimental laboratories.

The Mayo Clinic was host to the section and guests for a dinner at the Kahler Hotel.

The scientific sessions, consisting of discussions of calcium methodology by Dr. Jones, of aldosterone by Dr. V. R. Mattox, and of the Astrup system for determination of acid-base balance by Dr. J. W. Rosevear, were preceded by a short business meeting.

Upstate New York Section

On June 8, 1962, the Upstate New York Section held a meeting at the Medical Foundation of Buffalo. The scientific session was concerned with steroid chemistry. Dr. Roy Slavynwhite, of the Foundation, was the speaker.

The officers for the year 1962-1963 are Royden N. Rand, Chairman; Edward S. Gill, Chairman-Elect; Nathan Radin, Secretary-Treasurer; Martin Murray, Executive Committeeman; and Royden N. Rand, Alternate Executive Committeeman.
Marie H. Carr

The profession lost an outstanding biochemist with the passing of Marie H. Carr of Overland Park, Kans., on Apr. 28, 1962. Mrs. Carr had been employed by the Veterans’ Administration for many years as a clinical chemist at Wadsworth, Kans., and as a research biochemist at the Veterans’ Hospital in Kansas City, Mo. Her professional affiliations included the American Chemical Society, the American Society of Medical Technologists, and the American Association of University Women. She was a member of the AACC since 1950.

Mrs. Carr received her Bachelor of Science degree from the University of Wisconsin in 1920 and her Master of Arts from Kansas City University in 1945. She was author of numerous scientific papers published in 11 different journals, including the Journal of the American Chemical Society, American Journal of Medical Technology, Journal of Laboratory and Clinical Medicine, American Journal of Clinical Pathology, and the Journal of the American Medical Association. Only 5 weeks before her death she presented a paper before the American Chemical Society although she had been failing rapidly since the previous September. She is survived by her son, daughter, and seven grandchildren.

Fifth International Congress on Clinical Chemistry

The American Association of Clinical Chemists and the Canadian Society for Clinical Chemistry, invite clinical chemists to attend the Fifth International Congress on Clinical Chemistry, to be held in Detroit, under the Honorary Presidency of Oliver H. Gaebler, Ph.D., M.D., Aug. 19-23, 1963. The scientific program will occupy 4 days, and one day will be devoted to informal discussions and recreational activities. Exhibits of scientific equipment will be on display throughout the 5-day meeting.

Program

The four major symposia will be held in the mornings, with invited speakers. The proposed topics are:

1. Metabolic diseases
2. Lipid metabolism
3. Enzymes in clinical chemistry
4. Physical methods in clinical chemistry

The afternoon sessions will be composed of the reading of contributed papers by the members of the Congress. An abstract of not more than 250 words is required by Mar. 1, 1963. Papers may be presented in English, French, or German. However it is suggested that English is most likely to be generally understood. Further information concerning contributed papers will be published in the October issue.

Other Meetings

For those delegates who may be passing through Toronto, Ont., on their way to Detroit, and would like to see
Toronto and vicinity, the Toronto group of clinical chemists are arranging a symposium on Saturday morning, August 17, to be followed by a lunch and a tour of some hospital laboratories in the afternoon. The subject of the symposium will be “Studies on Protein Metabolism” and will be a presentation of investigations being conducted in Toronto. A visit to Niagara Falls can be arranged on Sunday, August 18.

Following the Congress, the 145th national meeting of the American Chemical Society will be held in New York City, September 8–13.

Special Events

A special excursion to Stratford, Ont., will be organized to attend a matinee performance at the Shakespeare Festival Theatre on Wednesday, August 21.

A special program will be provided for the guests of the Congress not attending the scientific sessions.

Further Information

Application forms, program, and a general information booklet will be available in the Fall of 1962 from the Secretary, Dr. Donald G. Remp, Fifth International Congress on Clinical Chemistry, Henry Ford Hospital, Detroit 2, Mich., U.S.A.

The Congress committee will appreciate readers' help in bringing this announcement to the attention of all interested persons.

Congress Committee

Co-Chairmen
Wendell T. Caraway, Ph.D.
Sanford H. Jackson, Ph.D.

Members
Edna A. Andrews, Ph.D.
Daniel H. Basinski, Ph.D.
Emanuel Epstein, Ph.D.
Roderick P. MacDonald, Ph.D.
Ruth D. McNair, Ph.D.
John G. Reinhold, Ph.D.
Donald G. Remp, Ph.D.
David B. Tonks, Ph.D.
Bennie Zak, Ph.D.