

CASUALTY ACTUARIAL SOCIETY

ORGANIZED 1914

RECOMMENDATIONS FOR STUDY

EDUCATIONAL COMMITTEE (1954)

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LIST OF PROCEEDINGS

The following schedule comprises a complete set of the *Proceedings* issued to date.

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Communications should be addressed to:

Albert Z. Skelding,
Secretary-Treasurer
 Casualty Actuarial Society
 107 William St., Room 1230
 New York, 38, N. Y.

RULES REGARDING EXAMINATIONS FOR ADMISSION TO THE CASUALTY ACTUARIAL SOCIETY

1. Dates of Examination.

Examinations will be held on two successive days during the second or third week of the month of May each year in such cities as will be convenient for three or more candidates. The exact dates will be set by the Secretary-Treasurer.

2. Filing of Application.

Application for admission to examinations should be made on the Society's blank form, which may be obtained from the Secretary-Treasurer. No applications will be considered unless received before the fifteenth day of February preceding the dates of examination. Applications should definitely state for what parts the candidate will appear.

3. Fees.

The examination fee is \$3.00 for each part, subject to a minimum of \$5.00 for each year in which the candidate presents himself; thus, for one part, \$5.00, for two parts, \$6.00, etc. Examination fees are payable to the order of the Society and must be received by the Secretary-Treasurer before the fifteenth day of February preceding the dates of examination.

4. Associateship and Fellowship Examinations.

The examination for Associateship consists of four parts and that for Fellowship consists of four parts. A candidate may take any one or more of the four parts of the Associateship examination. A candidate may present himself for part or all of the Fellowship examination either if he has previously passed the Associateship examination or if he concurrently presents himself for and submits papers for all unpassed parts of the Associateship examination. Subject to the foregoing requirements, the candidate will be given credit for any part or parts of either examination which he may pass.

5. Credit for Examination Parts under Former Syllabus.

The new Syllabus of examinations effective in 1955 represents a considerable rearrangement of study materials. In order to simplify the process of transition and assure maximum equity among candidates, the following procedure has been established:

A candidate who has passed, or been credited with, one or more parts of the Associateship or Fellowship examinations under the Syllabus effective in 1948 and/or the Syllabus effective in 1953 will receive credit for the corresponding parts of the new Syllabus in accordance with the following table:

<i>Parts Passed or Credited Under Old Syllabus (Effective in 1948 and/or 1953)</i>	<i>Parts Credited Under New Syllabus (Effective in 1955)</i>
Associateship, Part I	Associateship, Part I (a) and II (b)
" " II	" " III
" " III	" " I (b) and II (a)
" " IV	" " IV
Fellowship, Part I	Fellowship, Part IV
" " II	" " II (a) and III (a)
" " III	" " I (a) and III (b)
" " IV	" " I (b) and II (b)

Partial examinations will be given to those candidates requiring them in accordance with the foregoing credits.

6. Waiver of Examinations for Fellowship:

The examinations for Fellowship will be waived under Article III of the Constitution in part or in whole for those candidates who meet the qualifications and requirements set forth below.

1. WAIVER OF FELLOWSHIP PARTS III AND IV

(a) The candidate shall present himself in the same year for Fellowship Parts I and II, or shall have previously passed Parts I and II.

(b) The candidate shall present an original thesis on an approved subject relating to insurance (other than life insurance). Such thesis must show evidence of ability for original research and the solution of advanced insurance problems comparable with that required to pass Fellowship Parts III and IV. The thesis shall be of a character which would qualify it for printing in the Proceedings.

(c) Candidates electing this alternative should communicate with the Secretary-Treasurer and obtain through him approval of the Committee on Papers of the subject of the thesis and also of the thesis. In communicating with the Secretary-Treasurer, the candidate should state, in addition to the subject of the thesis, the main divisions of the subject and the general method of treatment, the approximate number of words and the approximate proportion to be devoted to data of an historical nature. All theses shall be in the hands of the Secretary-Treasurer before the examinations are held in May of the year in which they are to be considered. No examination fee will be required in connection with the presentation of a thesis.

2. FULL WAIVER

(a) The candidate shall have completed twenty years as an Associate member of this Society.

(b) The candidate shall present an original thesis on an approved subject relating to insurance (other than life insurance). The thesis shall be of a character which would qualify it for printing in the *Proceedings*.

(c) Candidates electing this alternative should communicate with the Secretary-Treasurer and obtain through him approval by the Com-

mittee on Papers of the subject of the thesis and also of the thesis. No examination fee will be required in connection with the presentation of a thesis.

7. Waiver of Examinations for Associateship.

The examinations for Associateship will be waived under Article III of the Constitution in part or in whole for those candidates who meet the qualifications and requirements set forth below.

1. PARTIAL WAIVER

Associateship Part I will be waived for a candidate who has passed Parts 1, 2 and 3 of the examinations of the Society of Actuaries.

2. FULL WAIVER

(a) The candidate shall be at least thirty-five years of age.

(b) The candidate shall have at least ten years' experience in actuarial or statistical work in insurance (other than life insurance) or in a phase of such insurance which requires a working knowledge of actuarial or statistical procedure or in the teaching of the principles of insurance (other than life insurance) in colleges or universities.

(c) For the two years preceding date of application, the candidate shall have been in responsible charge of the actuarial or statistical department of an insurance organization (other than a life insurance organization) or shall have occupied an executive position in connection with the phase of insurance (other than life insurance) in which he is engaged, or, if engaged in teaching, shall have attained the status of a professor.

(d) The candidate shall have submitted a thesis approved by the Committee on Papers. Such thesis must show evidence of analytical ability and knowledge of insurance (other than life insurance) sufficient to justify waiver of examinations.

(e) Refer to Paragraph 1 (c) of Rule 6 for details of submission.

LIBRARY

All students registered for the examinations of the Casualty Actuarial Society and all members of the Casualty Actuarial Society have access to all the library facilities of the Insurance Society of New York and of the Casualty Actuarial Society. These two libraries, with combined operations, are located at 107 William St., New York 38, New York and are under the supervision of Miss Ruby Church.

Registered students may have access to the library by receiving from the Society's Secretary-Treasurer the necessary credentials. Books may be withdrawn from the library for a period of one month without charge. The Insurance Society is responsible for postage and insurance charges for sending books to out of town borrowers, and borrowers are responsible for the safe return of the books.

Address requests for books to:

Librarian
Insurance Society of New York
107 William St.
New York 38, New York

SYLLABUS OF EXAMINATIONS

(Effective with 1955 Examinations)

ASSOCIATESHIP

<i>Part</i>	<i>Section</i>	<i>Subject</i>
I	(a)	Statistics.
	(b)	Probability.
II	(a)	Elementary Life Insurance Mathematics.
	(b)	General Principles of Insurance; Insurance Economics and Investments.
III	(a)	Insurance Law; Supervision, Regulation and Taxation of Insurance.
	(b)	Social Insurance.
IV	(a)	Policy Forms and Underwriting Practice.
	(b)	General Principles of Rate-making; Credibility.

FELLOWSHIP

I	(a)	Determination of Premium, Loss and Expense Reserves.
	(b)	Insurance Expense Analysis and Accounting.
II	(a)	Individual Risk Rating.
	(b)	Advanced Problems in Underwriting and Administration.
III	(a)	Machine Methods.
	(b)	Advanced Problems in Insurance Statistics.
IV	(a)	Advanced Problems in Rate-making.
	(b)	Current Insurance Problems.

RECOMMENDATIONS FOR STUDY

The examinations for admission to the two grades of membership in the Society are designed to establish the qualifications of candidates. The following Recommendations For Study are provided as a guide for the candidates in their preparation for the examinations. It should be realized that although the examination questions will be based upon the textual material cited, they will not necessarily be drawn directly therefrom. The examinations will test not only the candidate's knowledge of the subject matter, but also his ability to apply that knowledge.

In their study of the mathematical sections of the Associateship Examination, candidates are advised to work out as many examples as possible, in order to acquire facility in the application of the mathematical principles and methods to specific problems.

In preparing for the non-mathematical parts of the Associateship and all of the Fellowship Examinations, the candidate should be familiar with pertinent papers published in the Proceedings of the Casualty Actuarial Society subsequent to November 1953, in addition to the references cited. The candidate should also read at least one insurance journal for the year preceding his examination in order to be familiar with current developments.

In setting examination questions for Associateship Part IV, Sections (a) and (b), Fellowship Part II, Sections (a) and (b), Fellowship Part III, Section (b) and Fellowship Part IV, Sections (a) and (b), recognition will be given to the fact that some candidates may be trained essentially in casualty insurance while others are trained essentially in property insurance. Generally this recognition will take the form of providing multiple questions giving the candidate a limited choice.

The references to papers in the *Proceedings* of the Casualty Actuarial Society (denoted by P.C.A.S.) in the *Transactions of the Actuarial Society of America* (denoted by T.A.S.A.) and in the *Transactions of the Society of Actuaries* (denoted by T.S.A.) are considered to include all discussions of these papers in these publications, though the page references cited refer to the papers only.

Description of texts cited will be found in the Index at the end of these Recommendations.

Candidates can review the examinations given in previous years by referring to the reprints contained in the Proceedings of the Society. Copies of examinations for recent years may be obtained from the Secretary-Treasurer.

ASSOCIATESHIP: GENERAL

The candidate should have adequate preparation in business arithmetic and in algebra as a prerequisite to study for Part I, Sections (a) and (b) and Part II, Section (a) of these examinations. The preparation in algebra should include the equivalent of chapters 1-5, 8-14, 16 and 24 of "Higher Algebra" by Hall and Knight (published by Macmillan) with particular emphasis on permutations and combinations and the binominal theorem. It is also considered desirable for the candidate to have an elementary knowledge of differential and integral calculus. Such a background will add greatly to the candidate's understanding and appreciation of the mathematical parts of the examinations and also the technical papers contained in the *Proceedings* of the Society.

ASSOCIATESHIP: PART I

SECTION (a). STATISTICS.

Hoel, P. G. *Introduction to Mathematical Statistics*.

Richardson, C. H. *An Introduction to Statistical Analysis*. 1944.

SECTION (b). PROBABILITY.

Freeman, Harry. *Mathematics for Actuarial Students*. Part II, Chap. 10.

Hall, H. S., and Knight, S. R. *Higher Algebra*. Chap. 32.

Whitworth, W. A. *Choice and Chance*. 1934. (Included as a source of additional examples).

ASSOCIATESHIP: PART II

SECTION (a). ELEMENTARY LIFE INSURANCE MATHEMATICS.

Larson, R. E., and Gaumnitz, E. A. *Life Insurance Mathematics*. Chaps. 1-6.

New York (State) Workmen's Compensation Board. *Workmen's Compensation Tables (3% interest) 1948*. (Special bulletin no. 222).

Schloss, H. W. *Valuation of Death Benefits Provided by the Workmen's Compensation Law of New York*. P.C.A.S. XXXV, p. 40.

The candidate should have a working knowledge of the tables set forth in Special Bulletin No. 222, published by the New York Workmen's Compensation Board. The candidate will not be required to develop or reproduce the formulae contained in the Appendix to Special Bulletin No. 222 nor in the paper by Schloss.

SECTION (b). GENERAL PRINCIPLES OF INSURANCE; INSURANCE ECONOMICS AND INVESTMENTS.

- Badger, R. E., and Guthmann, H. G. *Investment Principles and Practices*. 1951.
- Boehmler, E. W. and others. *Financial Institutions*.
- Kulp, C. A. *Casualty Insurance*. 1942. Chaps. 1 and 2.
- Michelbacher, G. F. *Casualty Insurance Principles*. 1942. Chap. 1.
- Mowbray, A. H. *Insurance*. 1946. Chaps. 1-4.
- Riegel, Robert, and Miller, J. S. *Insurance Principles and Practices*. 1947. Chaps. 1 and 2.
- Willet, A. H. *The Economic Theory of Risk and Insurance*.

ASSOCIATESHIP: PART III

SECTION (a). INSURANCE LAW; SUPERVISION, REGULATION AND TAXATION OF INSURANCE.

- Carlson, T. O. *Rate Regulation and the Casualty Actuary*. P.C.A.S. XXXVIII, p. 9. (Contains analysis of casualty rate regulatory laws).
- Conyngton, T., and Bergh, L. O. *Business Law*. 1949.
- Donovan, J. B. *The New Era of Casualty Rate Regulation*. P.C.A.S. XXXIV, p. 50.
- Donovan, J. B. *Regulation of Insurance Under the McCarran Act*. (In: *Law and Contemporary Problems*. Regulation of insurance. 1950).
- Hobbs, C. W. *Workmen's Compensation Insurance*. 1939. Chaps. 5 and 15.
- Insurance Accounting and Statistical Association. *Insurance Accounting—Fire and Casualty*. Chaps. 7 and 14.
- Kulp, C. A. *Casualty Insurance*. 1942. Chap. 20.
- Michelbacher, G. F. *Casualty Insurance Principles*. 1942. Chap. 4.
- Mowbray, A. H. *Insurance*. 1946. Chaps. 27 and 28.
- National Association of Insurance Commissioners. *Proceedings*. (The last four years should be reviewed for all discussions and committee reports relating to the topics covered in this section).
- National Board of Fire Underwriters. *Committee on Law*. *Compilation of rate regulatory laws*. Vol. 1, *Fire*. (States of California, Connecticut, New York, and North Carolina only).
- New York (State) Insurance Dept. *Examination of Insurance Companies*. Vol. II, Part 2, Chaps. 2 and 3; Part 3, Chaps. 4 and 5.
- New York (State) Laws, statutes, etc. *New York Insurance Law*. Articles I-V, VII, VIII, IX a, b, c, X; XI a, b, c, XII, XV; XVI and XVII.
- New York (State) Laws, statutes, etc. *New York Tax Law*. Section 187.
- Sawyer, E. W. *Insurance as Interstate Commerce*.
- Vance, W. R. *Handbook of the Law of Insurance*. 1951. Chaps. 1-9.

SECTION (b). SOCIAL INSURANCE.

(1) *General.*

Farley, Jarvis, and Billings, Roger. An Approach to a Philosophy of Social Insurance. P.C.A.S. XXIX, p. 29.

Gagliardo, Domenico. American Social Insurance. Chap. 1.

International Labour Office. Approaches to Social Security. (Studies and reports. Series M. no. 18).

Meriam, L. Relief and Social security. Chaps. 22-24, 26-29, 37.

U. S. Laws, statutes, etc. Compilation of the Social Security Laws.

Williamson, W. R. Death 'n' Taxes. (Reprint from the Health and Accident Underwriters Conference. *Proceedings*, forty-ninth annual meeting, 1950).

—Social Budgeting. P.C.A.S. XXIV, p. 17.

—Some Backgrounds to American Social Security. P.C.A.S. XXX, p. 5.

(2) *Compulsory Automobile Insurance.*

Association of Casualty and Surety Companies. Chart analysis of the automobile liability security laws of the United States and Canada.

Committee to Study Compensation for Automobile Accidents. Report to the Columbia University Council For Research in the Social Sciences. Chap. 2.

Insurance Industry Committee on Motor Vehicle Accidents. Report relating to the State of New York . . . November, 1951.

Kline, G. H. and Pearson, C. O. The Problem of the Uninsured Motorist.

Kulp, C. A. Casualty Insurance. 1942. Chap. 9.

(3) *Cash Disability and Medical Care Insurance.*

Gagliardo, Domenico. American Social Insurance. Chaps. 17-22.

New York (State) Dept. of Labor. Studies in Disability Insurance. (Special bulletin no. 224)

Research Council for Economic Security. Disability Insurance, 1952 (Publication no. 97)

Schwartz, M. J. New York Statutory Disability Benefits Law, Coverage, Rates, and Rating plans. P.C.A.S. XXXVII, p. 57.

(4) *Old Age Assistance and Insurance.*

Gagliardo, Domenico. American Social Insurance. Chaps. 2-5.

(5) *Unemployment Insurance.*

Gagliardo, Domenico. American Social Insurance. Chaps. 9-12.

New York (State) Dept. of Labor. Economic brief in support of the New York Unemployment Insurance Law.

U. S. Dept. of Labor. Comparison of state Unemployment Insurance Laws.

ASSOCIATESHIP: PART IV

SECTION (a). POLICY FORMS AND UNDERWRITING PRACTICE.

The candidate should be familiar with policy provisions, manuals and the bases of exposure used in the respective lines of insurance. Since the manual and policy provisions change from time to time, it is essential to supplement the cited texts and papers by study of the contracts and manuals currently in use. The principal current manuals, with the names of the organizations publishing them, are cited herein. Copies of current insurance contracts must be obtained from a carrier.

Certain of the references encompass some material beyond the scope of this section, such as the determination of manual or class rates and individual risk rating plans. The examination for this section will not reflect such extraneous material.

(1) *General.*

Kulp, C. A. Casualty Insurance. 1942. Chaps. 3 and 4.

Michelbacher, G. F. Casualty Insurance Principles. 1942. Chaps. 5, 6, 13, 14.

Mowbray, A. H. Insurance. 1946. Chap. 5.

(2) *Fire Insurance.*

Middle Department Association of Fire Underwriters. Rule book.

Mowbray, A. H. Insurance. 1946. Chap. 6.

Riegel, Robert, and Miller, J. S. Insurance Principles and Practices. 1947. Chaps. 17-22.

(3) *Ocean Marine Insurance.*

Riegel, Robert, and Miller, J. S. Insurance Principles and Practices. 1947. Chap. 26.

Winter, W. D. Marine insurance; its Principles and Practices. 1952. Chaps. 5-15.

(4) *Inland Marine Insurance.*

Inland Marine Insurance Bureau. Forms-rules-rates.

Riegel, Robert, and Miller, J. S. Insurance Principles and Practices. 1947. Chap. 27.

Rodda, W. H. Inland Marine and Transportation Insurance. 1949. Chaps. 1-19.

(5) *Accident and Health Insurance.*

Faulkner, E. J. Accident and Health Insurance. Except Chap. 7.

McCahan, David. Accident and Sickness Insurance. Except Chaps. 11-14.

(6) *Automobile Insurance.*

Kulp, C. A. Casualty Insurance. 1942. Chap. 8.

National Automobile Underwriters Association. Rules, rates, and premiums . . . fire and transportation, theft, comprehensive, collision and miscellaneous perils . . . New York.

National Bureau of Casualty Underwriters. Automobile casualty manual. Riegel, Robert, and Miller, J. S. Insurance Principles and Practices. 1947. Chap. 29.

(7) *Aviation Insurance.*

Riegel, Robert, and Miller, J. S. Insurance Principles and Practices. 1947. Chap. 30.

(8) *Boiler and Machinery Insurance.*

Kulp, C. A. Casualty Insurance. 1947. Chap. 13.

National Bureau of Casualty Underwriters. Manual of Boiler and Machinery Insurance.

Riegel, Robert, and Miller, J. S. Insurance Principles and Practices. 1947. Chap. 25.

(9) *Burglary, Theft and Robbery Insurance.*

Kulp, C. A. Casualty Insurance. 1942. Chap. 11.

National Bureau of Casualty Underwriters. Manual of burglary, theft and robbery insurance.

Riegel, Robert, and Miller, J. S. Insurance Principles and Practices. 1947. Chap. 31.

(10) *Fidelity and Surety.*

Crist, G. W. Corporate Suretyship. 1950. Except Chaps. 3, 4, 7, 8.

Mackall, L. W. The Principles of Surety Underwriting. 1951.

Surety Association of America. Tables of basic rates for blanket position bonds...

(11) *General Liability Insurance.*

Ainley, J. W. Problems in Relation to Contractual Liability Insurance. P.C.A.S. XXV, p. 151.

Kulp, C. A. Casualty Insurance. 1942. Chap. 10.

National Bureau of Casualty and Surety Underwriters. Manual of liability insurance.

Sawyer, E. W. Comprehensive Liability Insurance.

(12) *Glass Insurance.*

Kulp, C. A. Casualty Insurance. 1942. Chap. 12.

National Bureau of Casualty Underwriters. Manual of glass insurance.

Riegel, Robert, and Miller, J. S. Insurance Principles and Practices. 1947. Chap. 25.

(13) *Workmen's Compensation Insurance.*

- Hobbs, C. W. *Workmen's Compensation Insurance*. 1939. Chaps. 1-4, 6-10, 12, 13.
- Kulp, C. A. *Casualty Insurance*. 1942. Chaps. 5-7.
- National Council on Compensation Insurance. *Basic manual of rules, classifications and rates for workmen's compensation and employers' liability*.
- SECTION (b). GENERAL PRINCIPLES OF RATE-MAKING; CREDIBILITY.
- Craig, J. D. *The Actuarial Basis for Premiums and Reserves in Personal Accident and Health Insurance*. P.C.A.S. XVII, p. 51.
- Crist, G. W. *Corporate Suretyship*. 1950. Chap. 8.
- Dorweiler, Paul. *Notes on Exposures and Premium bases*. P.C.A.S. XVI, p. 319.
- Farley, Jarvis. *A 1940 view of Non-cancellable Disability Insurance*. P.C.A.S. XXVII, p. 43-53, 69-74.
- Faulkner, E. J. *Accident and Health Insurance*. Chap. 7.
- Hobbs, C. W. *Workmen's Compensation Insurance*. 1939. Chaps. 16-18.
- Kulp, C. A. *Casualty Insurance*. 1942. Chap. 18.
- Kulp, C. A. *The rate making process in Property and Casualty insurance Goals, Techniques, and Limits*. (In *Law and Contemporary Problems. Regulation of insurance*. 1950).
- McCahan, David. *Accident and Sickness Insurance*. Chaps. 11 and 12.
- Magee, J. H. *General Insurance*. 1953. Chap. 12.
- Michelbacher, G. F. *Casualty Insurance Principles*. 1942. Chap. 7.
- Mowbray, A. H. *Insurance*. 1946. Chap. 20.
- Perryman, F. S. *Some Notes on Credibility*. P.C.A.S. XIX, p. 65.
- Riegel, Robert, and Miller, J. S. *Insurance Principles and Practices*. 1947. Chap. 23.

Reference in the above reading to individual risk rating plans and the determination of deductible and excess coverage rates should be ignored.

FELLOWSHIP: PART I

SECTION (a). DETERMINATION OF PREMIUM, LOSS AND EXPENSE RESERVES.

- Black, N. C. *Method of Setting up Reserve to Cover Incurred but not Reported Loss Liability*. P.C.A.S. XIV, p. 9.
- Conrod, S. F. *Valuation of Non-cancellable Accident and Health Insurance policies*. P.C.A.S. XXXII, p. 27.
- Craig, J. D. *The Actuarial Basis for Premiums and Reserves in Personal Accident and Health Insurance*. P.C.A.S. XVII, p. 51.
- Informal discussion: Premiums and Loss Reserves for Casualty and Bonding Insurance*. P.C.A.S. XXV, p. 366.

- Informal discussion: Reserves against the recurrence of an unfavorable loss ratio in the bonding lines. P.C.A.S. XXIII, p. 269.
- Insurance Accounting and Statistical Association. Insurance Accounting—fire and Casualty. Chaps. 9-11.
- Matthews, A. N. A system of Preparing Reserves on Workmen's Compensation Claims. P.C.A.S. XIV, p. 244.
- Michelbacher, G. F. Casualty Insurance Principles. 1942. Chap. 9.
- Mowbray, A. H. Insurance. 1946. Chap. 24.
- New York (State) Workmen's Compensation Board. Workmen's Compensation Tables (3% interest) 1948. (Special bulletin no. 222)
- Report of Committee on Compensation and Liability and Loss Expense Reserves. P.C.A.S. XXXV, p. 56, 64.
- Report of Committee on Mortality for Disabled Lives. P.C.A.S. XXXII, p. 123.
- Roeber, W. F., and Marshall, R. M. An American Remarriage Table. P.C.A.S. XIX, p. 279.
- Tarbell, T. F. Incurred but not Reported Claim Reserves. P.C.A.S. XX, p. 275.
- Valerius, N. M. On Indeterminate Reserve Tables for Compensation. P.C.A.S. XX, p. 82.

The candidate should have knowledge of the provisions of Sections 72, 74, 219, 326 and 352 of the New York Insurance Law (recodification of 1939 and subsequent amendments) which pertain to unearned premium, loss and loss expense reserves of casualty and surety, and fire companies. The current convention form of annual statement blank for fire and casualty companies sets forth in Schedule "P" the statutory loss reserve requirements for the liability and workmen's compensation lines. This schedule should be studied carefully.

SECTION (b). INSURANCE EXPENSE ANALYSIS AND ACCOUNTING.

The candidate should have an adequate knowledge of the following:

1. General accounting. As a prerequisite to a study of insurance accounting in detail, the candidate should be familiar with the fundamental accounting principles, terms and forms as set forth in standard college texts on the subject. Suggestion for reading: Tunick, S.B. and Saxe, E. Fundamental Accounting.
2. The purposes, details and sources of the accounts set forth in the current convention form of annual statement blank (with accompanying schedules).
3. National Bureau of Casualty Underwriters. Insurance Expense Exhibit.
4. New York (State) Insurance Dept. Regulation No. 30: uniform classifications of expenses of fire and marine and casualty and

surety insurers, effective January 1, 1949. (The candidate should also be familiar with all amendments to the regulation and official interpretations promulgated by the Uniform Accounting Sub-Committee of the National Association of Insurance Commissioners as found in their proceedings.)

Suggested readings for these topics are as follows:

Insurance Accounting and Statistical Association. Insurance Accounting—Fire and Casualty.

_____ Proceedings, 1953. p. 338-363, 398-404, 412-416.

McConnell, M. H. The Expense Study by Size of Risk. P.C.A.S. XXXIX, p. 19.

National Association of Insurance Commissioners. Proceedings, 1953. Report of industry uniform accounting subcommittee appointed to study preferred methods of allocation of specific activities under uniform accounting. Vol. I, p. 236.

Pruitt, D. M. Uniform Accounting—A Study of Regulation. P.C.A.S. XXXVI, p. 22.

Tarbell, T. F. The Combined Fire and Casualty Annual Statement Blank. P.C.A.S. XXXVII, p. 74 and XXXVIII, p. 113.

FELLOWSHIP: PART II

SECTION (a). INDIVIDUAL RISK RATING.

The candidate should study the following rating plans effective in the State of New York and the forms used in the application thereof:

National Bureau of Casualty Underwriters. Automobile liability experience rating plan.

_____ Boiler and machinery insurance premium adjustment rating plan.

_____ Burglary and glass—individual risk rating plan.

_____ Composite rating plan. (Automobile, general liability, burglary, glass)

_____ General liability experience rating plan.

_____ Retrospective rating plan D—rating supplements for liability lines. Surety Association of America. Fidelity experience rating plan.

The candidate should also study the following rating plans in the workmen's compensation field and the forms used in the application thereof:

National Council on Compensation Insurance. Workmen's compensation experience rating plan.

_____ Workmen's compensation retrospective rating plans. (A, B, C, D)

_____ National Defense Projects Rating Plan.

In addition the candidate should study the following property insurance rating plans:

- Inland Marine Insurance Bureau. Forms-rules-rates (individual risk rating)
 National Automobile Underwriters Association. Fleet rating formulae for automobile, fire, theft and collision.
 National Board of Fire Underwriters. Standard schedule for grading cities of the United States with references to their fire defenses and physical conditions.
 Moore, F. C. Standard universal schedule for rating mercantile risks.
 Multiple Location Service Office. Recommended rules and forms for multiple location reporting.
 Western Actuarial Bureau. Analytic system for the measurement of relative fire hazard.

The candidate is advised to read the references in the first four books cited below to obtain the general principles underlying individual risk rating, prior to studying the respective plans and the technical articles cited from the *Proceedings*. It should be noted that the general subject of individual risk rating includes the determination of rates for coverages other than full coverage, such as deductible, excess and aggregate stop loss.

- Hobbs, C. W. Workmen's Compensation Insurance. 1939. Chaps. 17 and 18.
 Kulp, C. A. Casualty Insurance. 1942. Chap. 19.
 Michelbacher, G. F. Casualty Insurance Principles. 1942. Chap. 8.
 Riegel, Robert, and Miller, J.S. Insurance Principles and Practices. 1947. Chaps. 23 and 29.
 Bailey, A. L. Workmen's Compensation D-Ratio Revision. P.C.A.S. XXXV, p. 26.
 Cahill, J. M. Deductible and Excess coverages, Liability and Property Damage lines other than automobile. P.C.A.S. XXIII, p. 18.
 ———— Excess Coverage (per accident basis) for Self-insurers: Workmen's Compensation—New York. P.C.A.S. XXVII, p. 77.
 Carlson, T. O. An Actuarial Analysis of Retrospective Rating. P.C.A.S. XXVIII, p. 283.
 Dorweiler, Paul. Observations on Making Rates for Excess Compensation Insurance. P.C.A.S. XIII, p. 154.
 ———— On Graduating Excess Pure Premium Ratios. P.C.A.S. XXVIII, p. 132.
 ———— A Survey of Risk Credibility in Experience Rating. P.C.A.S. XXI, p. 1.
 Johnson, R. A. The Multi-split Experience Rating Plan in New York. P.C.A.S. XXVIII, p. 15.
 Leslie, W. L., Jr. The National Defense Projects Rating Plan. P.C.A.S. XXXVIII, p. 174.

- Perryman, F. S. Experience Rating Plan Credibilities. P.C.A.S. XXIV, p. 60.
 _____ Possible Values for Retrospective Rating Plan. P.C.A.S. XXXI,
 p. 5.
- Peters, Stefan. Ex-medical Coverage—Workmen's Compensation. P.C.A.S. XXVII, p. 112.
- Smith, S. E. Interstate and Overall Rating Plans. P.C.A.S. XXXIV, p. 6.
- Uthoff, D. R. Excess Loss Ratios via Loss Distributions. P.C.A.S. XXXVII, p. 82.
- Valerius, N. M. Risk Distributions Underlying Insurance Charges in the Retrospective Rating Plan. P.C.A.S. XXIX, p. 96.

Reference should also be made to the reports cited in Section (a) of Part IV on the examination of rate making organizations by the New York Insurance Department for such information as is contained therein on individual risk rating plans.

SECTION (b). ADVANCED PROBLEMS IN UNDERWRITING AND ADMINISTRATION.

It is strongly recommended that the candidate seek to acquire technical proficiency in the subjects covered under this section by direct discussion, whenever possible, with executives in the various departments of the insurance business. In addition, the candidate should review scientific and professional journals and the proceedings of supervisory bodies or associations.

Illustrative of these materials are the following:

- International Association of Industrial Accident Boards and Commissions. Proceedings of the annual meeting.
- National Association of Insurance Commissioners. Proceedings.
- New York (State) Insurance Department. Annual report of the Superintendent of Insurance. Vol. II, Fire and marine insurance companies; Vol. III, Casualty, surety and miscellaneous insurance companies.
- New York (State) Insurance Dept. Preliminary report of Superintendent of Insurance.

The candidate should keep in touch with current developments by reading regularly the New York Journal of Commerce and also at least two general insurance periodicals. Best's Insurance News (Fire and Casualty) for the most recent years should be reviewed for articles relating to underwriting, investments and administration.

The candidate should review all papers in the Proceedings of the Casualty Actuarial Society for recent years which are not cited under the preceding sections and also such material recommended under

Associateship: Part IV, Section (a), as refers to underwriting practice. The following references are indicated for particular attention:

- Hobbs, C. W. Workmen's Compensation Insurance. 1939. Chap. 11.
- Michelbacher, G. F. Casualty Insurance Principles. 1942. Chaps. 2, 3, 12, 14-19, 21.
- Mowbray, A. H. Insurance. 1942. Chaps. 16-19, 21-23, 25, 26.
- Blackall, J. C. Stocks and Bonds as Insurance Company Investments. (In: National Association of Insurance Commissioners. Proceedings, 1936. p. 91.)
- Blanchard, R. H. Survey of Accident and Health Insurance. (U. S. Social Security Board. Bureau memorandum no. 62).
- Cahill, J. M. Multiple Line Underwriting. P.C.A.S. XXXVI, p. 1.
- Carlson, T. O. Rate Regulation and the Casualty Actuary. P.C.A.S. XXXVIII, p. 9.
- Clarke, John W. Seasonal Fluctuation in Loss Ratios for Automobile coverage. P.C.A.S. XXXVI, p. 63.
- Dorweiler, Paul. Policy Limits in Casualty Insurance. P.C.A.S. XX, p. 1.
- Informal discussion: Investments of Casualty Insurance Companies. P.C.A.S. XXIV, p. 141.
- Insurance Industry Committee on Motor Vehicle Accidents. Report relating to the State of New York.
- Johnson, R. A. Comparison of Workmen's Compensation costs. P.C.A.S. XL, p. 10.
- Kline, G. H. and Pearson, C. O. The Problem of the Uninsured Motorist. Report of the Committee on Bases of Exposure for Workmen's Compensation Insurance. P.C.A.S. XXI, p. 200.
- Scammon, L. W. Automobile Statistics by "Age of Driver". P.C.A.S. XXXVII, p. 43.
- Tarbell, T. F. The Effect of Changes in Values on Casualty Insurance. P.C.A.S. XIX, p. 1.
- Thompson, Kenneth. Reinsurance. 1951.
- Vanderfeen, C. G. Voluntary Plans for Granting Automobile Bodily Injury and Property Damage Liability Insurance to Risks Unable to Secure It. for Themselves. P.C.A.S. XXVIII, p. 471.

FELLOWSHIP: PART III

SECTION (a). MACHINE METHODS.

- Barber, H. T. Mechanized Unit Reporting. P.C.A.S. XXXIII, p. 5.
- Insurance Accounting and Statistical Association. Proceedings, 1953. p. 270-276, 329-332.
- _____ Proceedings, first electronic conference; electronics and its future in the insurance industry. 1953.
- _____ Panel discussion on electronic machinery. Proceedings, 1953. p. 438.

International Business Machines Corp. Electric punched card accounting machines—principles of operation.

Masterson, N. E. Statistical Methods for Casualty Companies by use of the Eighty Column Hollerith System. P.C.A.S. XVI, p. 288.

Pruitt, C. M. Premium Collections on Punch Cards. P.C.A.S. XXVIII, p. 503.

Report of Committee on New Recording Means and Computing Devices. T.S.A. IV, p. 170.

SECTION (b). ADVANCED PROBLEMS IN INSURANCE STATISTICS.

This section includes reading which covers (1) the planning and use of internal statistical material, and the compilation and presentation of insurance statistics for administrative and rate-making purposes, and (2) sources and uses of external statistics, particularly as they may be required in insurance administration and rate-making.

(1) *Internal Statistics.*

In addition to the references cited, the candidate should study the various statistical plans used in casualty and property insurance. The plans most widely used, and the organizations publishing them, are listed below:

Bureau of Personal Accident and Health Underwriters. Personal accident statistical plan . . . adopted January 1, 1922 . . . revised January 1, 1931.

_____ Personal health statistical plan . . . adopted January 1, 1921 . . . revised January 1, 1931.

Crist, G. W. Corporate Suretyship. 1950. Chap. 7.

Graves, C. H. Fire and Allied Lines Insurance Statistical Plan. P.C.A.S. XL, p. 40.

Hobbs, C. W. Workmen's Compensation Insurance. 1939. Chap. 16.

Inland Marine Insurance Bureau. Forms-rules-rates. (Statistical procedure)

Michelbacher, G. F. Casualty Insurance Principles. 1942. Chaps. 10 and 11.

Multiple Peril Insurance Rating Organization. Statistical plan.

National Association of Independent Insurers. Automobile statistical plan; all coverages.

_____ Statistical plans; casualty lines other than automobile.

National Automobile Underwriters Association. Automobile statistical plan for fire, theft, comprehensive, collision and allied coverages.

National Board of Fire Underwriters. Standard classification of occupancy hazards.

_____ Actuarial Bureau. Statistical plan for earned premiums and incurred losses.

National Bureau of Casualty Underwriters. Automobile bodily injury and property damage liability statistical plan.

- _____ Boiler and machinery insurance statistical plan.
- _____ Burglary insurance statistical plan.
- _____ Glass statistical plan.
- _____ Liability statistical plan.

National Council on Compensation Insurance. National Council workmen's compensation statistical plan. Contains Unit statistical plan and Schedule Z for workmen's compensation.

New York (State) Insurance Dept. Classification of fire occupancy hazards; evolution of the uniform statistical plan for classified fire experiences.

Surety Association of America. Standard fidelity, surety and forgery classification code.

The candidate should be familiar with the sources of published insurance statistics, so as to know where to obtain such information when the need arises. The following annual publications constitute a representative list of such sources:

Best, Alfred M., Co. Best's insurance reports (fire and casualty)

_____ Best's reproductions of principal schedules from casualty and surety statements.

_____ Best's fire and casualty aggregates and averages.

The National Underwriter. Argus casualty and surety chart.

_____ Argus fire chart.

The Spectator. The Spectator insurance year book; fire, marine, casualty and surety.

_____ Insurance by states.

_____ The Spectator handy chart of casualty, surety and miscellaneous insurance companies.

Weekly Underwriter. The insurance almanac.

(2) *External Statistics.*

The candidate should endeavor to become acquainted with as many sources of external statistics as possible so as to know where to obtain the necessary information in connection with the solution of problems arising in the casualty and property insurance business. The following is a representative but limited list of such sources:

U. S. Board of Governors of the Federal Reserve System. Federal reserve bulletin. Washington, U. S. Govt. Print. Off. Issued Monthly

Schmeckebier, Laurence. The statistical work of the national government.

U. S. Bureau of Foreign and Domestic Commerce . . . Distribution cost accounting. for wholesaling. (Domestic commerce series, no. 106)

U. S. Bureau of Labor Statistics. Methods of procuring and computing statistical information of the Bureau of Labor Statistics. (Bureau of Labor Statistics bulletin no. 326)

- U. S. Bureau of Budget. Office of Statistical Standards. Statistical services of the United States government.
- U. S. Bureau of the Census. Statistical abstract of the United States. Washington, Dept. of Commerce, Bureau of the Census. Issued annually.
- U. S. Dept. of Commerce. Survey of current business. Washington, U. S. Govt. Print. Off. Issued monthly.

FELLOWSHIP: PART IV

SECTION (a). ADVANCED PROBLEMS IN RATE-MAKING.

- Allen, E. S. Notes of the Effect of Wage Changes on Workmen's Compensation Premiums and Losses. P.C.A.S. XXXIX, p. 59.
- Atkiss, H. C. Fire Insurance Rate-making. p. 1-23.
- Backman, Jules. Surety Rate-making.
- Elliott, G. B. The Making of Workmen's Compensation Rates as Illustrated by the 1951 Pennsylvania Rate Revision. P.C.A.S. XXXVIII, p. 141.
- Flynn, B. D. Interest Earnings as a Factor in Casualty Insurance Rate-making. P.C.A.S. XIV, p. 285.
- Hunter, Arthur and Thompson, Allen B. Hospital Service Insurance. T.A.S.A. XLIV, p. 5.
- Informal discussion: Individual Accident and Sickness. T.S.A. V, p. 170.
- Johnson, R. A., Jr. New York Compensation Rate-making. P.C.A.S. XXXV, p. 6.
- Longley-Cook, L. H. Problems of Fire Insurance Rate-making. P.C.A.S. XXXVIII, p. 94.
- McConnell, M. H. A Casualty Man Looks at Fire Insurance Rate-making. P.C.A.S. XXXVIII, p. 103.
- Morrill, T. C. Fire Insurance Terms and Discounts.
- National Association of Insurance Commissioners. Committee on Fire and Marine Insurance. Second report of the special sub-committee of the Fire and Marine Committee regarding underwriting profit or loss and the Commissioners' 1921 standard profit formula, October 9, 1947 (McCullough report). Proceedings, 1948. p. 72.
- National Board of Fire Underwriters. Committee on Laws. Statement in reply to report by Mr. Roy McCullough regarding underwriting profit or loss and commissioners' 1921 standard profit formula, June 3, 1948. 126p.
- Thaler, A. M. Group Major Medical Expense Insurance, T.S.A. III, p. 429.

Important material on the determination of manual rates is contained in the reports on the examination of the following rate-making organizations by the New York Insurance Department which appear at intervals of three to five years:

- Compensation Insurance Rating Board (New York)
- Mutual Casualty Insurance Rating Bureau

National Bureau of Casualty Underwriters
 Surety Association of America
 Inland Marine Insurance Bureau
 National Automobile Underwriters Association
 New York Fire Insurance Rating Organization.

Copies of the above reports are in the library of the Society.

In addition, reference should be made to the four latest years of the Proceedings of the National Association of Insurance Commissioners.

FELLOWSHIP: PART IV

SECTION (b). CURRENT INSURANCE PROBLEMS.

The examination covering this section will contain a list of several subjects of current interest and importance in the industry, and the candidate will be asked to select one and write a short essay on it. There will be a choice between casualty and property subjects.

The candidate should keep in touch with current insurance problems by reading regularly the New York Journal of Commerce and also at least two general insurance periodicals, such as Best's Insurance News (Fire and Casualty Edition) and the Insurance Law Journal. He should likewise review the latest issues of scientific and professional journals and the most recent proceedings of supervisory bodies or associations, which are listed in part in Part II, Section (b).

This program of reading should be supplemented as much as possible by discussions with executives in the various departments of the insurance business.

INDEX TO READINGS

- Atkiss, H. C.** Fire Insurance Rate-making.—Part 1. New York City risks. Albany, New York State Insurance Department, 1950. 318p.
- Backman, Jules.** Surety Rate-making. New York, Surety Association of America, 1948. 492p.
- Badger, R. E., and Guthmann, H. G.** Investment Principles and Practices. 4th ed. New York, Prentice-Hall, Inc., 1951. 858p.
- Blanchard, Ralph H.** Survey of Accident and Health insurance. Bulletins 1-6. Washington, Federal Security Agency, Social Security Board, Bureau of Research and Statistics, 1945. 2v.
- Boehmler, E. W. and others.** Financial Institutions. Chicago, R. D. Irwin, Inc., 1951. 650p.
- Committee to Study Compensation for Automobile Accidents.** Report to the Columbia University Council for Research in the Social Sciences. Philadelphia, Press of International Publishing Company, 1932. 300p.

- Conyngton, T., and Bergh, L. O.** *Business Law*. 4th ed. New York, Ronald Press, 1949. 866p.
- Crist, G. W.** *Corporate Suretyship*. 2d ed. New York, McGraw-Hill, 1950. 441p.
- Faulkner, E. J.** *Accident and Health insurance*. New York, McGraw-Hill, 1940. 366p.
- Freeman, Henry.** *Mathematics for Actuarial Students*. Cambridge, Eng., Published for Institute of Actuaries at the University Press, 1939. 339p. (Part II, Finite difference, probability and elementary statistics)
- Gagliardo Domenico.** *American Social Insurance*. New York, Harper., 1949. 671p.
- Hall, H. S., and Knight, S. R.** *Higher Algebra*. 4th ed. London, Macmillan, 1918. 556p.
- Hobbs, C. W.** *Workmen's Compensation Insurance, including employers' liability*. 2d ed. New York, McGraw-Hill, 1939. 707p.
- Hoel, Paul G.** *Introduction to Mathematical Statistics*. New York, 1947. 258p.
- Insurance Accounting and Statistical Association.** *Insurance Accounting—Fire and Casualty*. Philadelphia, The Spectator, 1954. 351p.
- International Labour Office.** *Approaches to Social Security*. Montreal, The Office, 1942. 100p. (Studies and reports, series M—Social insurance no. 18)
- Kline, G. H. and Pearson, C. O.** *The Problem of the Uninsured Motorist; a report to Superintendent of Insurance Bohlinger*. Albany, New York State Insurance Dept., 1951. 174p.
- Kulp, C. A.** *Casualty Insurance*. New York, Ronald Press, 1942. 680p.
- Larson, R. E. and Gaumnitz, E. A.** *Life Insurance Mathematics*. New York, Wiley, 1951. 184p.
- Law and Contemporay Problems.** *Regulation of Insurance*. Durham, N. C., School of Law, Duke University, 1950. p.471-629.
- Mackall, L. W.** *The Principles of Surety Underwriting*. 4th ed. Philadelphia. The Spectator, 1951. 280p.
- Magee, John H.** *General Insurance*. 4th ed. Homewood, Ill., Richard D. Irwin, 1953. 924p.
- McCahan, David.** *Accident and Sickness insurance*. Philadelphia University of Pennsylvania Press, 1954.
- Meriam, L.** *Relief and Social security*. Washington, Brookings Institute, 1946. 912p.
- Michelbacher, G. F.** *Casualty Insurance Principles*. 2d ed. New York McGraw-Hill, 1942. 705p.
- Moore, F. C.** *Standard Universal Schedule for Rating Mercantile risks*. New York, Universal Schedule Committee, 1902, 141p.
- Morrill, T. C.** *Fire Insurance Terms and Discounts; a report to Robert Dineen, State of New York Insurance Department, 1950, submitted to Fire and Marine Insurance Committee, National Association of Insurance Commissioners*. Albany, New York State Insurance Dept., 1950.
- Mowbray, A. H.** *Insurance; Its Theory and Practice in the United States*. 3d ed. New York, McGraw-Hill, 1946. 694p.
- Multiple Location Service Office.** *Recommended rules and forms for multiple location reporting*. New York, the Office, n.d. Loose-leaf.
- National Association of Insurance Commissioners.** *Committee on Fire and Marine Insurance. Second report of the special subcommittee of the Fire and*

- Marine Committee regarding underwriting profit or loss and the Commissioners' 1921 standard profit formula October 9, 1947. Chicago, 1947. 106p. Prepared by Roy C. McCullough.
- National Board of Fire Underwriters.** Committee on Laws. Compilation of rate regulatory laws. New York, The Board, c1951. 2v.
- _____ Statement in reply to report prepared by Roy C. McCullough . . . which report is attached to the second report of the special subcommittee of the Fire and Marine Committee of the National Association of Insurance Commissioners, regarding underwriting profit or loss and Commissioners' 1921 standard profit formula, June 3, 1948. N.p., 1948.
- New York (State) Dept. of Labor.** Economic brief in support of the New York unemployment insurance law submitted to the Supreme Court of the United States, October term, 1936, including legal brief and additional documents. 2d ed. Albany, 1937. 356p.
- _____ Division of Research and Statistics. Studies in disability insurance. New York, The Dept. of Labor 1949. 157p. (Special bulletin no. 224)
- New York (State) Insurance Dept.** Examination of insurance companies . . . prepared under the supervision of Deputy Superintendent Adelbert G. Straub, Jr. New York, The Insurance Dept., 1953. 2v.
- _____ Regulation No. 30; uniform classifications of expenses of fire and marine and casualty and surety insurers, effective January 1, 1949. Albany, The Insurance Dept., n.d. Loose-leaf.
- New York (State) Workmen's Compensation Board.** Workmen's Compensation Tables (3% interest) 1948. New York, The Board, 1948. 65p. (Special bulletin no. 222)
- Research Council for Economic Security.** Disability insurance. Chicago, The Council, 1952. (Publication no. 97)
- Richardson, C. H.** An Introduction to Statistical Analysis. Rev. ed. New York, Harcourt, Brace, 1944. 498p.
- Riegel, Robert, and Miller, J. S.** Insurance Principles and Practices. 3d ed. New York, Prentice-Hall, 1947. 788p.
- Rodda, William H.** Inland Marine and Transportation Insurance. New York, Prentice-Hall, 1949. 539p.
- Sawyer, E. W.** Comprehensive Liability Insurance. New York, Underwriter Printing and Publishing Co., 1943. 176p.
- _____ Insurance as interstate commerce. New York, McGraw-Hill, 1945. 169p.
- Schmeckebier, Laurence.** The statistical work of the national government. Baltimore, The John Hopkins Press, 1925. 574p.
- Thompson, Kenneth.** Reinsurance. 3d ed. Philadelphia, The Chilton Co., c1953. 423p.
- Tunick, S. B., and Saxe, E.** Fundamental Accounting. New York, Prentice-Hall, 1950. 914p.
- U. S. Bureau of Foreign and Domestic Commerce . . .** Distribution cost accounting for wholesaling. Washington, U. S. Govt. Print. Off., 1939. 86p. (Domestic commerce series, no. 106)
- U. S. Bureau of Labor Statistics.** Methods of procuring and computing statistical information of the Bureau of Labor Statistics. Washington, U. S. Govt. Print. Off., 1923. ____p. (Bulletin of the U. S. Bureau of Labor Statistics no. 326)

- U. S. Bureau of the Budget.** Office of Statistical Standards. Statistical services of the United States government. Rev. ed. Washington, The Bureau, 1952. 78p.
- U. S. Laws, statutes, etc.** Compilation of the social security laws, including the social security act, as amended, and related enactments through December 31, 1951. Washington, U. S. Govt. Print. Off., 1951. 201p.
- Vance, W. R.** Handbook of the Law of Insurance. 3d ed. by Buist M. Anderson. St. Paul, West Pub. Co., 1951. 1200p.
- Western Actuarial Bureau.** Analytic System for the Measurement of Relative Fire Hazard. Chicago, The Bureau, n.d. Loose-leaf.
- Whitworth, W. A.** Choice and Chance with 1000 Exercises. New York, G. E. Stechert and Co., 1934. 342p.
- Willet, A. H.** The Economic Theory of Risk and Insurance. Philadelphia, University of Pennsylvania Press, 1951.
- Winter, William D.** Marine Insurance; Its Principles and Practices. 3d ed. New York, McGraw-Hill, 1952. 551p.

