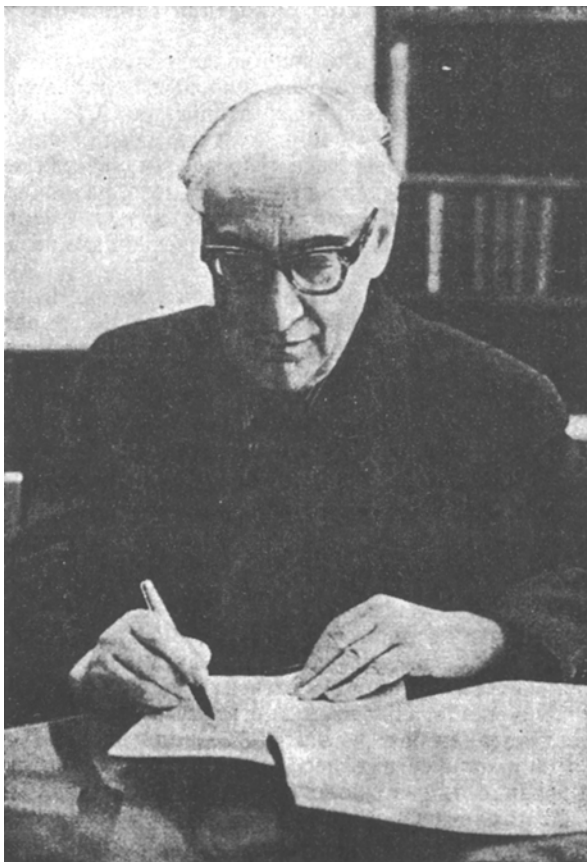


IN MEMORY OF SOLOMON ARONOVICH GILLER



Soviet chemical science has suffered a great loss, Solomon Aronovich Giller, the prominent organic chemist, editor-in-chief of *Khimiya Geterotsiklicheskikh Soedinenii* (Chemistry of Heterocyclic Compounds), Academician-Secretary of the Division of Chemical and Biological Sciences of the Academy of Sciences of the Latvian SSR (AS of the Latvian SSR), and director of the Institute of Organic Synthesis of the AS of the Latvian SSR, died on June 7, 1975, after a severe illness.

Professor Giller was born on January 14, 1915, in Riga. It was in this city that he received his secondary and university education. Already in his student days he accomplished, under Professor P. Kalnin, his first scientific research, which was devoted to the structure of the so-called "Langenbeck substance." In June, 1941, Professor Giller graduated from the chemistry department of Latvian State University; during the Second World War he worked in the enterprises of Stalingrad and Kazan, and in July of 1946 he began work in the AS of the Latvian SSR. Possessing outstanding abilities and indefatigable energy, Professor Giller in 10 years worked his way up from a junior scientific co-worker of the Institute of Forestry Problems to director of the Institute of Organic Synthesis, which he organized. In 1958 he was elected academician of the AS of the Latvian SSR, and in 1963 he

Translated from *Khimiya Geterotsiklicheskikh Soedinenii*, No. 1, pp. 3-26, January, 1976.

This material is protected by copyright registered in the name of Plenum Publishing Corporation, 227 West 17th Street, New York, N.Y. 10011. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, microfilming, recording or otherwise, without written permission of the publisher. A copy of this article is available from the publisher for \$7.50.

was elected academician-secretary of the Division of Chemical and Biological Sciences of the AS of the Latvian SSR.

Four principal trends can be singled out in the scientific-organizational and scientific-research activities of Professor Giller: the creation of the Institute of Organic Synthesis of the AS of the Latvian SSR, scientific research in the chemistry of heterocyclic compounds and in related fields, the search for new physiologically active compounds (medicinal and veterinary preparations for the most diverse purposes, chemical agents for utilization in agriculture, etc.), and the organization and carrying out of research in bio-organic chemistry and molecular biology.

Immediately after the war, while working in the Institute of Forestry Problems of the AS of the Latvian SSR, Professor Giller was occupied with the problem of the most efficient use of pentosans. These studies initiated research on the chemical synthesis of biologically active substances, inasmuch as pentosan-containing raw material is the principal source of furfural, and the study of the chemical transformations of furfural in turn served as a basis for the creation of effective medicinal preparations, first and foremost 5-nitro-furan derivatives. In addition, the study of the transformations of furfural led Professor Giller to basic research in the chemistry of furan and, subsequently, other heterocyclic systems.

At the very beginning of his research Professor Giller had already raised the question of the creation of a new type of scientific collective. The efficient development of the search for new physiologically active compounds required the organization of a complex institute in which microbiologists, pharmacologists, and clinical doctors would work in collaboration with synthetic chemists, realizing the screening, experimental study, and clinical testing of the synthesized substances. Moreover, the institute needed its own experimental production facility — an experimental plant for the preparation of compounds in the quantities necessary for clinical field tests and for the development of the technical regulations. In addition, a facility was needed for the development and output of finished medicinal forms. These principles also determined the structure of the Institute of Organic Synthesis, created in January, 1957. Professor Giller was named Director of the institute. In 18 years the collective grew to include 550 persons (including 100 individuals with masters' degrees in science and 12 professors and doctors of science). The institute has two experimental plants in which 700 individuals work. It is accommodated in large well-equipped chemistry and biology wings with new buildings of an experimental facility. The scientific reputation of the institute is responsible for its extensive scientific contacts both in the USSR and abroad. This institute has proved to be capable of independently solving all problems, beginning with general theoretical studies and ending with the manufacture of preparations for the needs of the country and for export.

In 1967 the Institute of Organic Synthesis of the AS of the Latvian SSR was the first of the Latvian scientific-research institutions to be awarded the Order of the Workers' Red Banner.

The manufacture of more than 60 medicinal preparations — antibacterial, antitubercular, antitumorigenic, antiviral, anti-Parkinson, and psychopharmacological preparations, myo-relaxants, and agents for the treatment of the cardiovascular system — was developed and realized in the field of medicinal chemistry after the first studies of the creation of the technology for the production of furacilin and p-aminosalicylic acid. Some of them are original preparations that have become well known in a number of foreign countries.

The overwhelming majority of these preparations, like most synthetic biologically active compounds in general, are members of classes of heterocyclic compounds of various types. Professor Giller, being a prominent heterocyclic chemist, in the first period of his activity studied diverse transformations in the furan series — oxidation, nitration, alkylation, acylation, reduction, deuteration, ring opening, etc. 5-Nitrofurylpolyene aldehydes and their derivatives proved to be particularly interesting both from a theoretical and practical point of view. Quantum-chemical calculations, spectral characteristics, and the magnitudes of the polarographic reduction potentials made it possible to predict that the introduction of an additional vinylidene group should increase the antibacterial activity of the compounds. As a result, original 5-nitrofurylacrolein derivatives — the active chemotherapeutic preparations "furagin" and "solafur," the antibacterial fiber "letilan" (jointly with the Leningrad Textile Institute), and the fungicidal preparation "nitrofurilen," etc. — were created.

The mechanism of the nitration of furan and its derivatives was studied simultaneously under the supervision of Professor Giller, and the structures of the intermediates in the nitration of furan and vinyl derivatives of furan were established.

Professor Giller and co-workers subsequently turned to the chemistry of nitrogen-containing heterocycles and did research on furanidylpyrimidines and pyridazones. The development of these studies led to the synthesis of model analogs of nucleotides and the development of a technology for the manufacture of the herbicide "fenazon." In addition, in a joint study, with M. Yu. Lidak, of the possibility of the synthesis of alkylating anti-tumorigenic preparations, Professor Giller arrived at the chemistry of ethyleneimine, which became one of the principal trends of his scientific research in recent years. With the aid of PMR spectroscopy in the case of N-aminoethyleneimine he discovered retarded inversion of the nitrogen atom in compounds of this type. This unexpected phenomenon, which is of importance for the stereochemistry of nitrogen compounds and was established in collaboration with a group of co-workers of the Institute of Chemical Physics of the Academy of Sciences of the USSR (by R. G. Kostyanovskii et al.), was officially registered as an invention in 1972 under the name "Configurational stability of trivalent nitrogen in nonbridged structures." In this area it is important to note the synthesis and study of the structure of 1,3-diazabicyclo[3.1.0]hexanes and the development of methods for the preparation and extensive testing of a large number of ethyleneimine derivatives, which led to the creation of new biologically active substances. For example, of the derivatives of the ethyleneimine series, the original preparation "imifos" proved to be an effective agent for the treatment of erythremia.

Under Professor Giller's supervision, his co-workers (M. V. Shimanskii et al.) also did important research on the catalytic synthesis of heterocyclic compounds (catalytic vapor-phase decarbonylation and partial oxidation of furan and pyridine derivatives, including technological processes for the production of maleic anhydride and furan, liquid-phase and vapor-phase deaminocyclization of ethylenediamine to piperazine, pyrazine, and triethylenediamine, etc.).

A large series of studies by Professor Giller's co-workers (Ya. P. Stradyn' et al.) were accomplished in the field of physical organic chemistry. The mechanism of the electrochemical reduction of 5-nitrofurans on a dropping-mercury electrode was studied, and correlations between the electrochemical properties and the biological activity of these compounds were found. A catalog of the electronic absorption spectra of 5-nitrofurans, which was subsequently translated into English in the United States, was published. The electrochemical generation of ion radicals of biologically active compounds was studied, and the dipole moments of a number of nitrogen-containing heterocycles were determined. Chemical cybernetics studies directed toward the prediction of the medicinal activity of organic compounds from their chemical structure were recently begun on the basis of a joint study of the broad spectrum of the physicochemical characteristics of a substance.

Research in bioorganic chemistry and molecular biology has occupied an important position in the problems of the Institute of Organic Chemistry in the last decade. These problem areas, which arose during research within the framework of classical organic chemistry, have with time taken on independent character. Such studies include research on the chemistry of peptides and proteins (G. I. Chipens et al.), nucleic acids and their synthetic model analogs (E. Ya. Gren, M. Yu. Lidak, I. N. Goncharova, R. A. Zhuk, et al.), and the modification of antibiotics.

At the First All-Union Conference on Physiologically Active Polymers (Riga, 1962) Professor Giller advanced the idea of the creation of model analogs of nucleic acids with retention of the natural pyrimidine and purine bases and the polyelectrolyte character of the macromolecular chain containing conformationally similar α,ω -polymethylenediol substituents in place of a sugar residue. In the opinion of Professor Giller, such model analogs, during their association with nucleic acids, could have a direct effect on certain functions of the latter. In this direction, his co-workers made a series of studies of the synthesis and physical and biochemical properties of model analogs of nucleosides and mono- and polynucleotides. This series of studies also includes the synthesis, by Professor Giller and R. A. Zhuk, of the preparation "ftorafur," i.e., α -(2-furanidyl)-5-fluorouracil, which is the latent transport form of the 5-fluorouracil antimetabolite and, in addition, a simplified model of a nucleoside. Ftorafur has proved to be one of the effective agents in the modern

arsenal of the chemotherapy of malignant tumors and is designated for the treatment of cancer of the breast and the gastroenteritic tract.

Extensive biochemical and clinical study of this preparation is currently under way in the USSR, Japan, and the United States; the preliminary results of these studies were presented in Riga in 1973 in a joint Soviet-Japanese-American symposium devoted to special problems in the treatment of cancer with ftorafur.

The Institute of Organic Synthesis has become very well known owing to its practical, organizational, and scientific approaches to the creation of new medicinals. A correlation of the efficient methods for the "organization" of medicinal preparations was accomplished and a discussion of the prospects for the development of this area was held in Riga on January 17-18, 1975, in a symposium-discussion entitled "Biochemical and molecular biological approaches to the search for new physiologically active compounds," which was the last scientific meeting in which Professor Giller actively participated.

Professor Giller also did great service in the development and incorporation into practice of new agents for the chemization of agriculture (the herbicide fenazon and the preparations MG-T, MG-sodium, diludin, etc.), many of which are being turned out by the experimental plant of the institute and the chemical industry of the USSR.

Professor Giller's research results were presented in more than 300 publications, in many addresses at all-union and international congresses, symposiums, and conferences. He held 80 author's certificates and 50 patents in various countries. He was also the editor of 30 collections and monographs.

Professor Giller's activity substantially promoted a general upgrading of chemical science and chemical industry in Soviet Latvia. It should be emphasized that chemistry in Latvia has long-established traditions: the classic figures of chemical science C. Grotthuss, W. Ostwald, and P. Walden, as well as many other prominent chemists, including the late Academician of the AS of the Latvian SSR G. Vanag, did research here. Many of the achievements of these scientists have received universal recognition. However, Riga chemists of previous generations were primarily concerned with the solution of theoretical problems, inasmuch as they did not have at their disposal large institutes and the necessary instrumental techniques. The chemical industry in Latvia has developed at a slow pace. Professor Giller knew how to be guided by the existing traditions and to develop them as applied to new tasks and conditions and to the age of the functioning of industrialized science. He actively developed the idea that Latvia lacks sources of raw materials for "large-scale chemistry," and that fine organic synthesis and the manufacture of reagents for molecular biology and chemistry should therefore be developed here. It is precisely owing to the collaboration of science and industry in Soviet Latvia that small pharmaceutical-chemical plants were initially constructed in Riga, followed by large plants for biochemical reagents and the manufacture of pharmaceutical-chemical preparations in Olaine — the chemical satellite of Riga. A number of technological processes developed by the scientists of the Institute of Organic Synthesis were incorporated in the plants of Olaine and Riga and in other republics of the USSR. All this served as the foundation for the creation of a fine chemical industry in the Latvian SSR, an industry that did not exist 30 years ago.

Strengthening of the bonds between Latvian chemists and scientists of the leading scientific centers of the USSR in no small measure promoted the development of chemistry in Latvia. Professor Giller directed the work of a number of all-union scientific councils: the Scientific Council on the Chemistry and Technology of Organic Sulfur Compounds in affiliation with the State Committee on Science and Technique of the Council of Ministers of the USSR (since 1969), the chemical section of the Council on Automation of Scientific Research of the Academy of Sciences of the USSR (since 1972), and the All-Union Scientific Council on the Utilization of Pentosan-Containing Raw Material in Affiliation with the AS of the Latvian SSR (since 1956). The following conferences and symposiums were conducted systematically in Riga with his active participation: the Seventh International IUPAC Symposium on the Chemistry of Natural Compounds with four presymposiums (1970), the Third All-Union Biochemical Congress (1974), the 16th All-Union Conference on High-Molecular-Weight Compounds (1966), the First All-Union United Symposium on the Chemistry of Peptides (1967), the Second All-Union Conference on Organic Semiconductors (1966), the Seventh All-Union Conference on the Electrochemistry of Organic Compounds (1973), and a number of other impressive conferences. They all made extensive scientific exchange possible and stimulated the growth and development of Soviet chemical science.

It should be emphasized that the scientific-organizational activity of Academician S. A. Giller and his experience in the incorporation of the achievements of science in the national economy and in raising the effectiveness of scientific developments had repercussions far beyond the borders of the Latvian republic: they were illuminated extensively in the central press, and many scientific workers from all of the republics of the USSR and foreign socialistic countries visited the institute to familiarize themselves with this experience. The Institute of Organic Synthesis of the AS of the Latvian SSR, especially in recent years, has begun to give a great deal of assistance to a number of scientific-research establishments of other cities and republics in the study of the biological activity of newly synthesized compounds, the measurement of their physical and physicochemical characteristics, the determination of their elementary composition, etc. Many studies of this sort have subsequently resulted in cooperative systematic investigations and publications. Series of joint studies with the active participation of Professor Giller were also made together with the institutes of the Academies of Science of the German Democratic Republic, Poland, Czechoslovakia, and the universities of these socialist countries.

Professor Giller also participated directly in the education of the rising generation of scientists. As professor of the department of the technology of fine organic synthesis of Riga Polytechnic Institute (from 1964) and professor of the department of organic chemistry of P. Stuchka Latvian State University (from 1973), he delivered lectures on the chemistry of nucleosides, nucleotides, and nucleic acids. Under his supervision, 30 master's dissertations were defended; he was also scientific consultant for five doctoral dissertations.

Professor Giller also did a great deal to popularize scientific knowledge and often delivered lectures before the population of the Latvian SSR and wrote articles for the newspapers and popular-science and political journals. He also participated actively in the public and Party activities of the Republic. In 1963, 1966, and 1971 he was elected alternate member of the Central Committee of the Communist Party of Latvia.

He initiated the creation of the all-union journal *Khimiya Geterotsiklicheskikh Soedinenii* (Chemistry of Heterocyclic Compounds) and was its organizer and permanent editor-in-chief from the publication of the first issue in 1965. Under his supervision, the journal acquired its own scientific personality, became the principal journal for the publication of Soviet scientific material on the chemistry of heterocycles, and attracted the attention of numerous Soviet and foreign authors.

Professor Giller also made a large contribution to the chemical science of our country. His experience in scientific-organizational activities in fine organic synthesis shows graphically to what extent the development of profound theoretical studies rationally linked with the industrial cycle can be economically effective and how important the directed character of research in our era can be. His merits were highly esteemed by the Communist Party and the Government of the USSR. In 1951 he was awarded the State Prize of the USSR for the development of the technology of the antitubercular preparation PASK, and in 1957 and 1965 he was awarded the State Prize of the Latvian SSR for the development of new medicinal preparations. In 1965 he was awarded the honorary title of Honored Scientist and Technologist of the Latvian SSR.

Professor Giller also received the Order of the October Revolution, two Orders of the Workers' Red Banner, the Order of the Mark of Distinction, medals, and diplomas from the Presidium of the Supreme Soviet of the Latvian SSR. In 1972 he was elected a member of the Leopoldine German Academy of Natural Scientists.

Professor Giller, a Communist scientist, highly talented chemist, outstanding organizer of science, enthusiastic researcher, and a man of exceptionally diverse interests and clear intellect, was constantly full of creative projects and ideas. His life is an example of service to his native land and to science.

BIBLIOGRAPHY OF THE SCIENTIFIC WORKS OF ACADEMICIAN OF THE ACADEMY OF SCIENCES OF THE LATVIAN SSR S. A. GILLER

The complete bibliography of all of the published works of Academician S. A. Giller (1915-1975) in chronological order, which encompasses the period from the beginning of his

scientific activity in 1946 to January 1, 1966, has been previously published in the form of an individual book [Academician S. A. Giller. Bibliography, Zinatne, Riga (1967), 128 pages]. The present bibliography was composed partially on the basis of the bibliographic index mentioned above and was supplemented by citations to works published prior to the end of 1975. However, in contrast to the previously published bibliography, only data on his published scientific monographs and articles, author's certificates and patents, and the scientific books and collections edited by him are included in it. The summaries of papers and the popular science and scientifically informative materials have not been included in it.

Inasmuch as Professor Giller's scientific activity was extremely diversified, the bibliography of his works is broken down into 17 thematic divisions, in each of which the material is arranged in chronological order.

The bibliography was prepared for publication by T. A. Popova with the consultation of Academician of the AS of the Latvian SSR Ya. P. Stradyn' and Master of Chemical Sciences I. N. Goncharova.

I. Chemistry of Furan

1. S. A. Giller and A. A. Berzin', "Crystalline modifications of 5-nitro-2-furfurylideneaminoguanidine sulfate," *Izv. Akad. Nauk LatvSSR*, No. 11, 1733-1738 (1951).
2. S. A. Giller and Ya. A. Ēidus, "UV absorption spectra of some nitrofurans," *Izv. Akad. Nauk LatvSSR*, No. 8, 1223-1238 (1951).
3. S. A. Giller, "Study of methods for the synthesis and physicochemical properties of and interrelationship between the structure and biological activity of some substituted 5-nitrofurfurylideneimines," Author's Abstract of His Master's Degree, Riga (1953).
4. S. A. Giller, "Nitrofurans," in: *Furacilin and Experience with Its Application* [in Russian], Riga (1953), pp. 7-74.
5. S. A. Giller and A. A. Berzin', "Crystalline modifications of 5-nitro-2-furfurylideneaminoguanidine sulfate," in: *Furacilin and Experiences with Its Application* [in Russian], Riga (1953), pp. 91-96.
6. S. A. Giller, N. O. Saldabol, and Ya. A. Ēidus,* "Some studies of the UV absorption spectra of nitrofurans," *Izv. Akad. Nauk SSSR, Ser. Fiz.*, 708-714 (1953).
7. S. A. Giller and Ya. A. Ēidus,* "UV absorption spectra of some nitrofurans," in: *Furacilin and Experience with Its Application* [in Russian], Riga (1953), pp. 75-90.
8. S. A. Giller, M. M. Gershov, N. N. Naumenko, and Ē. Yu. Gudrinietse, "Method for the preparation of 5-nitrofurfural diacetate," *USSR Author's Certificate No. 97012; Byul. Izobr.*, No. 2, 14 (1954).
9. S. A. Giller and M. Ya. Berklava, "Acetylation in the presence of anhydrous zinc chloride," *Izv. Akad. Nauk LatvSSR*, No. 4, 53-59 (1956).
10. S. A. Giller, "Nitrofurans," in: *Problems in the Utilization of Pentosan-Containing Raw Material. Proceedings of the All-Union Conference* [in Russian], Riga (1958), pp. 451-458.
11. S. A. Giller, A. Ē. Berzinya, and L. Ya. Lauberte, "Research on the alkylation of furan with olefins. I. Alkylation of furan with ethylene," *Izv. Akad. Nauk LatvSSR*, No. 4, pp. 71-79 (1958).
12. S. A. Giller and K. K. Venter, "Syntheses involving 5-nitrofuryl-2-polyalkenals and 5-nitrofuryl-2-polyalkenones. I. Preparation of β -(5-nitro-2-furyl)acrolein by condensation of 5-nitrofurfural with acetaldehyde," *Izv. Akad. Nauk LatvSSR*, No. 12, pp. 115-124 (1958).
13. S. A. Giller and Z. Ya. Zelmene, "Some new furan mercurichlorides," *Izv. Akad. Nauk LatvSSR*, No. 11, pp. 97-101 (1958).
14. S. A. Giller and G. P. Sokolov, "Multiplicity of the bond between the 3 and 4 atoms in the furan ring," *Izv. Akad. Nauk LatvSSR*, No. 12, 125-128 (1958).
15. N. O. Saldabol and S. A. Giller, "Syntheses in the 2-acetylfuran series," in: *Problems in the Utilization of Pentosan-Containing Raw Material. Proceedings of the All-Union Conference* [in Russian], Riga (1958), pp. 379-391.

* Deceased.

16. N. O. Saldabol and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. I. Nitration of methyl 2-furyl ketone," *Izv. Akad. Nauk LatvSSR*, No. 10, 101-108 (1958).
17. N. O. Saldabol and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. II. ω -Bromination of methyl 2-furyl ketone and its 5-nitro derivative," *Izv. Akad. Nauk LatvSSR*, No. 11, 91-96 (1958).
18. K. K. Venter, S. A. Giller, and N. O. Saldabol, "Syntheses involving 5-nitrofuryl-2-polyalkenals and 5-nitrofuryl-2-polyalkenones. II. Nitration of 2-furfurylideneacetone," *Izv. Akad. Nauk LatvSSR*, No. 8, 99-106 (1959).
19. S. A. Giller and A. É. Berzinya, "Research on the alkylation of furan with olefins. II. Magnitude of the increment of the molecular refractions of mono- and polyalkylfurans," *Izv. Akad. Nauk LatvSSR*, No. 5, 109-114 (1959).
20. S. A. Giller and M. Ya. Berklava, "Some comments on the nitration of 2-furyl- β -nitroethylene," *Izv. Akad. Nauk LatvSSR*, 115-119 (1959).
21. N. O. Saldabol and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. III. Aminomethyl 2-furyl ketone and some of its derivatives," *Izv. Akad. Nauk LatvSSR*, No. 1, 77-85 (1959).
22. N. O. Saldabol and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. IV. ω -Dialkylsulfonium derivatives of methyl 2-furyl ketone and methyl 5-nitro-2-furyl ketone," *Izv. Akad. Nauk LatvSSR*, No. 3, 53-56 (1959).
23. S. A. Giller, B. V. Kurgan, and N. O. Saldabol, "Preparative method for the synthesis of 5-nitropyromucic acid," *Izv. Akad. Nauk LatvSSR*, No. 3, 49-51 (1959).
24. S. A. Giller and G. P. Sokolov, "Tetrahydrofuran as a solvent for the reduction of carbonyl-containing compounds," *Izv. Akad. Nauk LatvSSR*, No. 2, 85-90 (1959).
25. N. O. Saldabol, B. V. Kurgan, and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. V. Hydroxymethyl 2-furyl ketone and some of its derivatives," *Izv. Akad. Nauk LatvSSR*, No. 4, 81-86 (1959).
26. S. A. Giller, K. K. Venter, N. O. Saldabol, and R. Yu. Kalnberg, "Method for the preparation of β -(5-nitro-2-furyl)acrolein and α -ethyl- β -(5-nitro-2-furyl)acrolein," *USSR Author's Certificate No. 130045; Byul. Izobr.*, No. 14, 15 (1960).
27. É. Ya. Lukevits, Yu. P. Romadan, and S. A. Giller, "Synthesis of furfuryloxysilanes," *Izv. Akad. Nauk LatvSSR*, No. 7, 59-64 (1961).
28. K. K. Venter, S. A. Giller, and A. A. Lazdyn'sh, "Syntheses involving 5-nitrofuryl-2-polyalkenals and 5-nitrofuryl-2-polyalkenones. IV. Nitration of β -(2-furyl)acrolein and synthesis of some unsaturated furan aldehydes and ketones," *Izv. Akad. Nauk LatvSSR*, No. 5, 87-97 (1961).
29. N. O. Saldabol and S. A. Giller, "New Mannich bases from 2-acetylfuran, 2-furalacetone, and their 5-nitro derivatives," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 309-310 (1962).
30. K. K. Venter, S. A. Giller, and V. V. Tsirole, "Nitration of β -(5-nitro-2-furyl)acrylic acid derivatives," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 131-134 (1962).
31. S. A. Giller and A. É. Berzinya, "Research on the alkylation of furan with olefins. III. Alkylation of furan with propylene," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 103-111 (1962).
32. S. A. Giller and A. É. Berzinya, "Research on the alkylation of furan with olefins. IV. Alkylation of furan with 1-butene and isobutylene," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 113-118 (1962).
33. S. A. Giller and A. É. Berzinya, "Research on the alkylation of furan with olefins. V. Alkylation of furan with isoamylenes," *Izv. Akad. Nauk, SSR, Ser. Khim.*, 445-453 (1962).
34. É. Ya. Lukevits, Yu. P. Romadan, S. A. Giller, and M. G. Voronkov, "Organosilicon compounds of the furan series. Syntheses in a series of furan-containing organosilicon compounds. III. Organosilicon derivatives of furylcarbinols and 5-substituted furfuryl alcohols," *Dokl. Akad. Nauk SSSR*, 145, 806-808 (1962).
35. G. P. Sokolov and S. A. Giller, "Method for the preparation of 2,2,5-trimethoxy-2,5-dihydrofuran," *USSR Author's certificate No. 149430; Byul. Izobr.*, No. 16, 25 (1962).
36. M. Ya. Berklava and S. A. Giller, "Alcohols of the nitrofuran series. I. Reduction of 5-nitrofurfural and β -(5-nitro-2-furyl)acrolein with sodium borohydride and esterification of the resulting alcohols," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 349-355 (1963).
37. S. A. Giller, N. O. Saldabol, and A. Ya. Medne, "2-Amino-4-(5-nitro-2-furyl)thiazole and its derivatives," *Zh. Obshch. Khim.*, 33, 317-318 (1963).
38. N. O. Saldabol and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. VI. New ω -ammonium derivatives of methyl 2-furyl ketone. Utilization of trialkylamines in the Ortolev-King reaction," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 479-483 (1963).
39. N. O. Saldabol and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. VII. 2-Furylglyoxal, 5-nitro-2-furylglyoxal, and their derivatives," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 858-862 (1963).

40. B. V. Kurgan, S. A. Giller, and A. A. Gruze, " β -Hydroxyethylhydrazides of furancarboxylic acids," *Zh. Obshch. Khim.*, 2664-2667 (1964).
41. N. O. Saldabol and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. VIII. 2-Furylglyoxylic acid derivatives," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 701-706 (1964).
42. N. O. Saldabol, A. Ya. Medne, and S. A. Giller, "Synthesis and transformations of furan derivatives. II. Derivatives of 2-amino- and 2-hydrazino-4-(5'-nitro-2'-furyl)thiazoles," *Zh. Obshch. Khim.*, 34, 1598-1601 (1964).
43. G. P. Sokolov, M. G. Voronkov, and S. A. Giller, "Reaction of 2,5-dimethoxytetrahydrofuran with glycols. Synthesis of cyclic diacetals of succinic dialdehyde," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 667-672 (1964).
44. G. P. Sokolov, S. A. Giller, M. G. Voronkov, "Reaction of organomagnesium compounds with 2,5-dimethoxy-2,5-dihydrofurans," *Dokl. Akad. Nauk SSR*, 158, 675-678 (1964).
45. K. Venters and S. Hillers, "Functional derivatives of 5-nitro-2-furylpolyalkenes," in: *Nitro Compounds. Proceedings of the International Symposium Held at the Polish Academy of Sciences. Warsaw, Sept. 18-20, 1963, Warsaw-London (1964)*, pp. 71-79 (Tetrahedron, 20, 1).
46. S. A. Giller and Ya. A. Kastron, "Method for the preparation of polymers," USSR Author's Certificate No. 167922; *Byul. Izobr.*, No. 3, 38 (1964).
47. S. A. Giller and R. Yu. Kalnberg, "Method for the preparation of 3-(5-nitro-2-furfurylideneamino)-2-oxazolidone (furazolidone)," USSR Author's Certificate No. 160508; *Byul. Izobr.*, No. 4, 15 (1964).
48. G. P. Sokolov, M. G. Voronkov, and S. A. Giller, "Method for the preparation of cyclic acetals of succinic and maleic dialdehydes," USSR Author's Certificate No. 165468; *Byul. Izobr.*, No. 19, 17 (1964).
49. K. K. Venter, S. P. Korshunov, L. I. Vereshchagin, R. L. Bol'shedvorskaya, D. O. Lolya, and S. A. Giller, "Synthesis of 5-nitro-2-furyl- and 2-furylpropionic acids," *Khim. Geterotsikl. Soedin.*, 616-619 (1965).
50. S. A. Giller, A. A. Anderson, A. É. Berzinya, and M. V. Shimanskaya, "Research on the alkylation of furan with olefins. VI. Investigation of the products of alkylation of furan with olefins by means of gas-liquid partition chromatography," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 575-578 (1965).
51. S. A. Giller, L. I. Vereshchagin, K. K. Venter, S. P. Korshunov, V. V. Tsirole, and D. O. Loyla, "2-Furyl and 5-nitro-2-furyl acetylenic ketones," *Dokl. Akad. Nauk SSSR*, 164, 99-102 (1965).
52. Ya. A. Kastron and S. A. Giller, "Reaction of ethyl β -furylglycidate with ammonia," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 471-477 (1965).
53. Ya. A. Kastron and S. A. Giller, "Reaction of ethyl β -furylglycidate with aniline and p-toluidine," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 478-481 (1965).
54. B. V. Kurgan, S. A. Giller, and A. A. Gruze, "N,N-Bis(2-chloroethyl)amides and N,N-bis(2-chloroethyl)hydrazides of carboxylic acids of the furan series," *Khim. Geterotsikl. Soedin.*, 11-14 (1965).
55. G. P. Sokolov and S. A. Giller, "Electrochemical methoxylation of halofurans," *Khim. Geterotsikl. Soedin.*, 163-170 (1965).
56. B. V. Kurgan, S. A. Giller, and A. A. Gruze, "Method for the preparation of N,N-bis(2-chloroethyl)hydrazides of furancarboxylic acids," USSR Author's Certificate No. 169540; *Byul. Izobr.*, No. 7, 27 (1965).
57. S. A. Giller and A. É. Berzinya, "Research on the alkylation of furan with olefins. VII. Vibrational spectra of alkyl-substituted furans," *Khim. Geterotsikl. Soedin.*, 487-498 (1968).
58. B. V. Kurgan and S. A. Giller, "Thioamides of 5-nitrofuran-2-carboxylic and 3-(5'-nitro-2'-furyl)acrylic acids," *Khim. Geterotsikl. Soedin.*, 323-327 (1966).
59. N. O. Saldabol and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. IX. ω -Ammonium derivatives of methyl 5-nitro-2-furyl ketone," *Khim. Geterotsikl. Soedin.*, 855-858 (1966).
60. N. O. Saldabol and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. X. 5-Nitro-2-furylglyoxylic acid and its derivatives," *Khim. Geterotsikl. Soedin.*, 859-862 (1966).
61. L. I. Vereshchagin, S. P. Korshunov, Ya. A. Éidus, K. K. Venter, and S. A. Giller, "Furylalkynes. VIII. IR spectra and intramolecular interaction in some acetylenic derivatives of furan and thiophene," *Zh. Organ. Khim.*, 3, 184-189 (1967).

62. S. A. Giller, A. Y. Zile, K. K. Venter, S. P. Zaeva, M. A. Al'berta, K. K. Medne, S. K. Germane, and R. Yu. Kalnberg, "Investigations of the fungistatic Properties of derivatives of α,β -unsaturated and polyene aldehydes and ketones of the 5-nitrofuran series," *Izv. Akad. Nauk LatvSSR*, No. 12, 99-105 (1967).
63. B. V. Kurgan, A. A. Gruze, É. Ya. Lukevits, and S. A. Giller, "2-Haloethyl and 2-haloethylthio esters of carboxylic acids of the furan series," *Khim. Geterotsikl. Soedin.*, 18-21 (1967).
64. N. O. Saldabol and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. XI. Monofunctional 5- and 6-(2-furyl)-1,2,4-triazine derivatives," *Khim. Geterotsikl. Soedin.*, 14-17 (1967).
65. N. O. Saldabol, S. A. Giller, L. N. Alekseeva, and B. A. Brizda, "Syntheses in the methyl 2-furyl ketone series. XII. (5-Nitro-2-furyl)-substituted imidazo heterocyclic compounds with a nitrogen atom in common," *Khim.-Farmats. Zh.*, No. 2, 27-31 (1967).
66. N. O. Saldabol, A. Ya. Medke, and S. A. Giller, "Syntheses in the methyl 2-furyl ketone series. XII [XIII]. ω -Derivatives of methyl 5-bromo-2-furyl ketone. XIII [XIV]. ω,ω -Dihalomethyl-2-furyl ketones and their 5-nitro derivatives. 5-Nitro-2-furylglyoxal," *Khim. Geterotsikl. Soedin.*, 553-556 (1967).
67. K. K. Venter, S. A. Giller, and V. V. Tsirule, "Method for the preparation of β -(5-nitro-2-furyl)acrolein," USSR Author's Certificate No. 224530; *Byul. Izobr.*, No. 26, 34 (1968).
68. L. I. Vereshchagin, R. I. Katkevich, S. A. Giller, K. K. Venter, L. N. Alekseeva, L. V. Kruzmetra, Z. Ya. Zile, and N. P. Glazunova, "Synthesis and antibiotic properties of some nitrofurylacetylenic compounds," *Khim.-Farmats. Zh.*, No. 10, 31-34 (1968).
69. M. A. Berklava and S. A. Giller, "Alcohols of the nitrofuran series. II. Reduction of α -ethyl- β -(5-nitro-2-furyl)acrolein and 5-(5-nitro-2-furyl)-2,4-pentadienal with sodium borohydride," *Khim. Geterotsikl. Soedin.*, 12-16 (1967).
70. A. Ya. Perkone, N. O. Saldabol, and S. A. Giller, "Bromination of 2-amino- and 2-acetamido-4-(2-furyl)thiazoles," *Khim. Geterotsikl. Soedin.*, 498-500 (1969).
71. K. K. Venter, S. A. Giller, M. A. Apsite, V. É. Égert, and Z. Ya. Zelmene, "Method for the preparation of 5-nitrofurfurylideneacetylhydrazone or its vinyls," USSR Author's Certificate No. 250156; *Byul. Izobr.*, No. 26, (1969).
72. V. V. Kotetskii, Ya. A. Kharit, L. A. Vol'f, A. I. Meos, S. A. Giller, and K. K. Venter, "Method for the preparation of chemical fibers with disinfectant properties," USSR Author's Certificate No. 256934; *Byul. Izobr.*, No. 35, 55 (1969).
73. S. A. Giller, M. V. Shimanskaya, V. É. Égert, and K. K. Venter, "Method for the preparation of water-soluble salts of 1-(5-nitrofurfurylideneamino)hydantoin and its vinyls," USSR Author's Certificate No. 274113; *Byul. Izobr.*, No. 21, 28 (1970).
74. A. A. Lazdyn'sh, K. K. Venter, and S. A. Giller, "Method for the preparation of β -(5-nitro-2-furyl)acrolein," USSR Author's certificate No. 269926; *Byul. Izobr.*, No. 16, 21 (1970).
75. N. O. Saldabol and S. A. Giller, "Nitration of 2-acetylfuran and acetophenone oximes," in: *The Chemistry of Heterocyclic Compounds. Collection 2. Oxygen-Containing Heterocycles* [in Russian], Riga (1970), pp. 118-121.
76. N. O. Saldabol and S. A. Giller, "Synthesis and transformations of 5-nitro-2-propionylfuran," in: *The Chemistry of Heterocyclic Compounds. Collection 2. Oxygen-Containing Heterocycles* [in Russian], Riga (1970), pp. 122-124.
77. S. A. Giller, K. K. Venter, M. A. Apsite, V. E. Egert, R. Yu. Kalnberg, and L. V. Kruzmetra, "Method for the preparation of 3-(5'-nitrofurfurylideneamine)hydantoic acid derivatives," USSR Author's Certificate No. 313435; *Byul. Izobr.*, No. 12, 242 (1972).
78. N. O. Saldabol, L. L. Zeligman, S. A. Giller, Yu. Yu. Popelis, A. E. Abele, and L. N. Alekseeva, "Nitrosation and bromination of 6-(2'-furyl)imidazo[2,1-b]thiazole and its derivatives," *Khim. Geterotsikl. Soedin.*, 1353-1358 (1972).
79. S. A. Giller, L. A. Vol'f, and A. I. Meos, "Method for the modification of fibers and films," Italian Patent No. 712346 (1966).
80. S. A. Giller, K. K. Venter, and V. V. Tsirule, "Method for the preparation of β -(5-nitro-2-furyl)acrolein," Italian Patent No. 733091 (1966); British Patent No. 1109417 (1968).
81. S. A. Giller, L. A. Vol'f, and A. I. Meos, "Method for the modification of polyvinyl alcohol," Japanese Patent No. 530039 (1968).
82. S. A. Giller, M. V. Shimanskaya, V. É. Égert, and K. K. Venter, "Water-soluble alkali metal salts of 1-(5'-nitrofurfurylideneamino)hydantoin and its vinyls," British Patent No. 1129195 (1968); French Patent No. 1529664 (1968).

83. S. A. Giller, L. A. Vol'f, and A. I. Meos, "Treatment of fibers and films," British Patent No. 1085554 (1968).
84. S. A. Giller, K. K. Venter, and A. A. Lazdyn'sh, "Treatment of fibers and films," French Patent No. 1555141 (1968).
85. S. A. Giller, K. K. Venter, and A. A. Lazdyn'sh, "Improved method for the preparation of β -(5-nitro-2-furyl)acrolein," British Patent No. 1164588 (1969).
86. S. A. Giller, M. V. Shimanskaya, V. É. Égert, and K. K. Venter, "Improved method for the preparation of β -(5-nitro-2-furyl)acrolein," US Patent No. 3531477 (1970).
87. S. A. Giller, M. V. Shimanskaya, V. É. Égert, and K. K. Venter, "Method for the preparation of water-soluble potassium and sodium salts of hydantoin derivatives," Swiss Patent No. 498143 (1970).
88. S. A. Giller, K. K. Venter, and V. V. Tsirule, "Method for the preparation of water-soluble potassium and sodium salts of hydantoin derivatives," US Patent No. 3491123 (1970).
89. S. A. Giller, K. K. Venter, and A. A. Lazdyn'sh, "Method for the preparation of water-soluble potassium and sodium salts of hydantoin derivatives," Swiss Patent No. 507229 (1971); Japanese Patent No. 612033 (1971).
90. L. A. Vol'f, S. A. Giller, and A. I. Meos, "Method for the modification of fibers and films," West German Patent No. 1444079 (1973).
91. N. O. Saldabol, A. Yu. Tsimanis, Yu. Yu. Popelis, and S. A. Giller, "2-(5-Bromo-2-furyl)quinoxaline and 3-(5-bromo-2-furyl)2-quinoxalone," Khim. Geterotsikl. Soedin., 404-406 (1973).
92. S. A. Giller, N. O. Saldabol, L. L. Zeligman, "Method for the preparation of 2-(5-nitro-2-furyl)imidazo[1,2-a]pyridine," USSR Author's Certificate No. 407897; Byul. Izobr., No. 47, 82 (1973).
93. S. A. Giller, N. O. Saldabol, and A. Yu. Tsimanis, "Method for the preparation of 3-(5-nitro-2-furyl)2-quinoxalone," USSR Author's Certificate No. 410015; Byul. Izobr., No. 1, 81 (1974).
94. N. O. Saldabol, A. Yu. Tsimanis, S. A. Giller, Yu. Yu. Popelis, L. N. Alekseeva, A. Ya. Zile, and A. K. Yalynskaya, "Derivatives of 5-nitro-2-furylglyoxal and its analogs," Khim.-Farmats. Zh., No. 8, 12-16 (1974).
95. D. O. Lolya, K. K. Venter, É. É. Liepin'sh, and S. A. Giller, "Nitration of furan derivatives with acetyl nitrate. I. Investigation of the products of nitration of methyl furan-2-carboxylate," Khim. Geterotsikl. Soedin., 883890 (1975).

II. Chemistry of Ethyleneimine

1. M. Yu. Lidak and S. A. Giller, "Some reactions of ethyleneimine. I. Reaction of **ethyleneimine** with aliphatic and carbocyclic aldehydes and ketones," Izv. Akad. Nauk LatvSSR, No. 5, 99-108 (1961).
2. M. Yu. Lidak and S. A. Giller, "Some reactions of ethyleneimine. II. Reaction of ethyleneimine with furfural, benzaldehyde, and their derivatives," Izv. Akad. Nauk LatvSSR, No. 7, 49-58 (1961).
3. M. Yu. Lidak and S. A. Giller, "Some reactions of ethyleneimine. III. Reaction of ethyleneimine with unsaturated aldehydes," Izv. Akad. Nauk LatvSSR, Ser. Khim., 81-88 (1961).
4. M. Yu. Lidak and S. A. Giller, "Some reactions of ethyleneimine. IV. Reaction of **ethyleneimine** with substituted furancarboxylic acid chlorides," Izv. Akad. Nauk LatvSSR, Ser. Khim., 211-216 (1961).
5. M. Yu. Lidak and S. A. Giller, "New carcinostatic derivatives of ethyleneimine. Study of the reaction of ethyleneimine with derivatives containing carbonyl and carboxyl functions," in: Methods for the Synthesis of and Search for Antitumorigenic Preparations [in Russian], Moscow (1962), pp. 193-202.
6. S. A. Giller, A. V. Ereemeev, M. Yu. Lidak, and V. A. Pestunovich, "Chemistry of ethyleneimine. I. N-Aminoethyleneimine. II. Mechanism of the oxidative transformation of N-aminoethyleneimine," Khim. Geterotsikl. Soedin., 815-822 (1968).
7. S. A. Giller, A. V. Ereemeev, and M. Yu. Lidak, "Chemistry of ethyleneimine. III. Reaction of N-aminoethyleneimine with the simplest aliphatic aldehydes and acrolein," Khim. Geterotsikl. Soedin., 3-7 (1970).
8. S. A. Giller, A. V. Ereemeev, M. Yu. Lidak, and V. A. Pestunovich, "Chemistry of **ethyleneimine**. IV. Heterolysis of the ring of N-aminoethyleneimine under the influence of sulfonyl halides," Khim. Geterotsikl. Soedin., 8-11 (1970).

9. S. A. Giller, A. V. Ereemeev, M. Yu. Lidak, and V. A. Kholodnikov, "Chemistry of ethyleneimine. V. Derivatives of the sulfate ester of β -hydroxyethylhydrazine and their conversion under the conditions of the Wenker synthesis. VI. N,N-Ethylenehydrazones of ketones," *Khim. Geterotsikl. Soedin.*, 466-474 (1970).
10. S. A. Giller, A. V. Ereemeev, and M. Yu. Lidak, V. A. Pestunovich, É. É. Liepin'sh, and I. Ya. Kalvin'sh, "Chemistry of ethyleneimine. VII. Pyramidal stability of N-aminoethyleneimine derivatives," *Khim. Geterotsikl. Soedin.*, 45-48 (1971).
11. S. A. Giller, A. V. Ereemeev, M. Yu. Lidak, V. A. Kholodnikov, and V. A. Pestunovich, "Chemistry of ethyleneimine. VIII. Synthesis and properties of 2-alkyl-substituted 1,3-diazabicyclo[3.1.0]hexane," *Khim. Geterotsikl. Soedin.*, 607-609 (1971).
12. S. A. Giller, A. V. Ereemeev, V. A. Pestunovich, M. Yu. Lidak, R. G. Kostyanovskii, O. A. Pan'shin, Z. E. Samoilova, and I. I. Chervin, "Phenomenon of the configurational stability of trivalent nitrogen in nonbridged structures," *Byul. Izobr.*, No. 24, 3 (1972).
13. S. A. Giller, M. Yu. Lidak, A. V. Ereemeev, and V. A. Kholodnikov, "Chemistry of ethyleneimine. IX. Preparation and properties of 2-aryl-substituted 1,3-diazabicyclo[3.1.0]hexanes," *Khim. Geterotsikl. Soedin.*, 483-484 (1972).
14. S. A. Giller, É. É. Liepin'sh, V. A. Pestunovich, A. V. Ereemeev, and V. A. Kholodnikov, " ^1H and ^{13}C NMR spectra of N-aminoethyleneimine hydrazones," *Khim. Geterotsikl. Soedin.*, 571-573 (1975).
15. S. A. Giller, R. S. Él'kinson, and A. V. Ereemeev, "Conjugation of the aziridine and benzene rings in a number of p-substituted N-phenylethyleneimines," *Khim. Geterotsikl. Soedin.*, 70-72 (1975).
16. S. A. Giller, A. V. Ereemeev, D. A. Tikhomirov, and É. É. Liepin'sh, "Synthesis of arylhydrazones of 1-amino-2-arylethyleneimines," *Khim. Geterotsikl. Soedin.*, 426-429 (1975).
17. S. A. Giller, É. É. Liepin'sh, V. A. Pestunovich, A. V. Ereemeev, and V. A. Kholodnikov, "Chemistry of ethyleneimine. X. PMR spectra of substituted 1,3-diazabicyclo[3.1.0]hexanes," *Khim. Geterotsikl. Soedin.*, 928-936 (1975).
18. S. A. Giller, A. V. Ereemeev, V. A. Kholodnikov, and É. É. Liepin'sh, "Chemistry of ethyleneimine. XI. Addition of 2-aminomethylethyleneimine to an activated carbon-carbon double bond," *Khim. Geterotsikl. Soedin.*, 1212-1216 (1975).
19. S. A. Giller, É. É. Liepin'sh, A. V. Ereemeev, I. Ya. Kalvin'sh, V. A. Kholodnikov, and V. A. Pestunovich, "Configuration of 2-substituted 1-aminoethyleneimines," 1337-1339 (1975).
20. S. A. Giller, A. V. Ereemeev, I. Ya. Kalvin'sh, and É. É. Liepin'sh, "Chemistry of ethyleneimine. XII. Transformations of 1-chloro-2-cyano-(2,2-dimethylhydrazino)ethane in the presence of sodium hydride," *Khim. Geterotsikl. Soedin.*, 1503-1505 (1975).
21. S. A. Giller, A. V. Ereemeev, I. Ya. Kalvin'sh, É. É. Liepin'sh, and V. G. Semenikhina, "Derivatives of 1-H-aziridine-2-carboxylic acid," *Khim. Geterotsikl. Soedin.*, 1625-1631 (1975).
22. S. A. Giller, Ya. Ya. Bleidelis, A. A. Kemme, A. V. Ereemeev, and V. A. Kholodnikov, "Crystalline and molecular structure of 2-(o-bromophenyl)-1,3-diazabicyclo[3.1.0]hexane," *Zh. Strukt. Khim.*, 3, 411-415 (1975).
23. S. Giller (Hiller), Ya. Bleidelis, A. Kemme, and A. Ereemeev (Eremeyev), "X-ray crystal and molecular structure determination of a novel bicyclic system - 2- β -bromophenyl-1,3-diazabicyclo[3.1.0]hexane," *Chem. Commun.*, 130 (1975).

III. Chemistry of Five- and Six-Membered Nitrogen-Containing Heterocycles

1. M. Yu. Lidak, S. A. Giller, and N. N. Naumenko, "Preparation of isonicotinic acid from the light (β -picoline) fraction of pyridine bases," *Izv. Akad. Nauk LatvSSR*, No. 12, 83-88 (1953).
2. É. É. Dunkel' and S. A. Giller, "Preparation of 1,2-dihydropyridazine-3,6-dione," *Izv. Akad. Nauk LatvSSR*, No. 2, 105-108 (1954).
3. Kh. M. Vasserman and S. A. Giller, "Structure and properties of some 3,6-disubstituted pyridazines," *Izv. Akad. Nauk LatvSSR*, No. 5, 87-92 (1958).
4. Kh. M. Vasserman, S. A. Giller, and A. A. Avot, "Preparative synthesis of new ganglion blockers - pentapyrrolidinium and tetrapiperidinium salts," *Izv. Akad. Nauk LatvSSR*, No. 5, 79-86 (1958).
5. M. Yu. Lidak, S. A. Giller, and N. N. Naumenko, "Preparation of isonicotinic acid from the light (β -picoline) fraction of pyridine bases," in: *Tubazid [in Russian]*, Izd. Akad. Nauk LatvSSR, Riga (1958), pp. 9-17.

6. G. P. Sokolov, and S. A. Giller, "Method for the preparation of substituted amides and hydrazides of pyridazine-3-carboxylic acid," USSR Author's Certificate No. 134269; Byul. Izobr., No. 24, 16 (1960).
7. L. Ya. Avota and S. A. Giller, "Method for the preparation of 1-phenyl-4,5-dichloro-6-pyridazone," USSR Author's Certificate No. 172335; Byul. Izobr., No. 13, 22 (1965).
8. S. A. Giller and L. Ya. Avota, "Method for the preparation of 1-phenyl-4-amino-5-chloro-6-pyridazone," USSR Author's Certificate No. 172813; Byull. Izobr., No. 14, 29 (1965).
9. S. A. Giller, K. K. Venter, G. D. Tirzit, Kh. I. Girshovich, Z. G. Fridman, and S. G. Fridlender, "Method for the preparation of the cyclic hydrazide of maleic acid," USSR Author's Certificate No. 174631; Byul. Izobr., No. 18, 27 (1965).
10. L. Ya. Avota, N. Ya. Ozolinya, and S. A. Giller, "Research in the 1-phenyl-6-pyridazone series. I. Reaction of 1-phenyl-4,5-dichloro-6-pyridazone with ammonium hydroxide," Izv. Akad. Nauk LatvSSR, Ser. Khim., 347-352 (1967).
11. S. A. Giller and L. Ya. Avota, "Dipyridazo[4,5-b:4,5-e]-1,4-dithiynes and dipyridazo sulfides," Khim. Geterotsikl. Soedin., 572 (1967).
12. G. P. Sokolov and S. A. Giller, "Synthesis of some bis heterocycles of the pyridazine series," Khim. Geterotsikl. Soedin., 556-559 (1967).
13. S. A. Giller, L. Ya. Avota, and N. Ya. Ozolinya, "Preparation of 1-phenyl-4,5-dichloro-6-pyridazone," Izv. Akad. Nauk LatvSSR, Ser. Khim., 348-352 (1968).
14. R. A. Zhuk, Ya. A. Éidus, and S. A. Giller, "Synthesis, structure, and spectra of 6-(2-furyl)polyene derivatives of 5-nitrouracil," Khim. Geterotsikl. Soedin., 1111-1115 (1968).
15. N. O. Saldabol, G. Ya. Zarinya, and S. A. Giller, "6-(2-Furyl)imidazo[2,1-b]thiazole and its derivatives," Khim. Geterotsikl. Soedin., 178-180 (1968).
16. S. A. Giller, G. Ya. Dubur, Ya. R. Uldrikis, G. D. Tirzit, A. R. Val'dman, I. M. Zakharchenko, Ya. Ya. Spruzh, V. E. Ronis, and A. A. Makarov, "Method for the preparation of 3,5-dicarbonyl derivatives of 2,6-dimethyl-1,4-dihydropyridines," USSR Author's Certificate No. 300465; Byul. Izobr., No. 13, 95 (1971).
17. N. O. Saldabol, L. L. Zeligman, and S. A. Giller, "Aminomethylation of 2-(2-furyl)-imidazo[1,2-a]pyridine," Khim. Geterotsikl. Soedin., 818-821 (1971).
18. N. O. Saldabol, L. L. Zeligman, and S. A. Giller, "Application of the King method for the synthesis of imidazo[1,2-a]pyridines," Khim. Geterotsikl. Soedin., 860-861 (1971).
19. S. A. Giller, A. A. Lazdyn'sh, D. Ya. Snikere, A. K. Veinberg, I. L. Knunyants, L. S. German, and N. B. Kozmina, "Method for the preparation of 5-fluorouracil," USSR Author's Certificate No. 322053; Byul. Izobr., No. 32, 186 (1972).
20. N. O. Saldabol, S. A. Giller, L. N. Alekseeva, and I. V. Dipan, "3-Nitro derivatives of 2-(2-furyl)indolizine and 2-(furyl)imidazo[1,2-a]pyridine and its substituted derivatives," Khim.-Farmats. Zh., No. 6, 16-19 (1972).
21. S. A. Giller and L. Ya. Avota, "Method for the preparation of N₁-tetrahydropyranyl- and N₁-tetrahydrofuran-3-hydroxy-6-pyridazones," USSR Author's Certificate No. 382629; Byul. Izobr., No. 23, 61 (1973).
22. L. Ya. Avota, I. V. Turovskii, and S. A. Giller, "N₁-Tetrahydrofuran-3-hydroxy-6-pyridazones," Khim. Geterotsikl. Soedin., 1545-1547 (1973).
23. N. O. Saldabol, L. L. Zeligman, and S. A. Giller, "β-Substituted 2-vinylimidazo[1,2-a]pyridines from saturated ketones," Khim. Geterotsikl. Soedin., 137-141 (1973).
24. A. D. Voitenko, Ya. A. Kastron, É. É. Liepin'sh, and S. A. Giller, "Alkylation of 3-isoxazolidone," Khim. Geterotsikl. Soedin., 3-7 (1973).
25. A. D. Voitenko, Ya. A. Kastron, and S. A. Giller, "Mechanism of the alkylation of isoxazolidone," Khim. Geterotsikl. Soedin., 898-901 (1973).
26. N. O. Saldabol, A. Yu. Tsimanis, and S. A. Giller, "N-Oxides in the synthesis of arylglyoxylic acids," Zh. Organ. Khim., 5, 1059-1063 (1974).
27. S. A. Giller, L. Ya. Avota, and A. A. Lazdyn'sh, "Method for the preparation of 1-phenyl-4,5-dichloro-6-pyridazone," USSR Author's Certificate No. 436055; Byul. Izobr., No. 26, 67 (1974).
28. S. A. Giller, A. V. Ereemeev, I. Ya. Kalvin'sh, É. É. Liepin'sh, and D. A. Tikhomirov, "Reaction of α-chloroacrylonitrile with hydrazines," Khim. Geterotsikl. Soedin., 246-249 (1975).
29. S. A. Giller, G. Ya. Dubur, Ya. R. Uldrikis, A. R. Val'dmans, I. M. Zakharchenko, Ya. Ya. Spruzh, V. E. Ronis, A. A. Makarova, and G. D. Tirzit, "Method for the preparation of 3,5-dicarbonyl derivatives of 2,6-dimethyl-1,4-dihydropyridines," French Patent No. 7026988 (1972); British Patent No. 1294650 (1972); US Patent No. 3883673 (1975).

30. L. Ya. Avota, V. A. Pestunovich, and S. A. Giller, "Silylation of 6-pyridazone derivatives," *Khim. Geterotsikl. Soedin.*, 990-996 (1976).

IV. Analogues of Nucleosides and Nucleotides

1. S. A. Giller, "State and tasks of scientific research on the synthesis of physiologically active polymeric substances," Paper presented at the All-Union Conference on Physiologically Active Polymeric Substances [in Russian], Riga (1962), pp. 1-10.
2. S. A. Giller, R. A. Zhuk, and M. Yu. Lidak, "Analogues of pyrimidine nucleosides. I. N_1 -(α -Furanidyl) derivatives of natural pyrimidine bases and their antimetabolites," *Dokl. Akad. Nauk SSSR*, **176**, 332-335 (1967).
3. S. A. Giller, R. A. Zhuk, and Ya. G. Nashatyr', "Analogues of pyrimidine nucleosides. II. N_1 -(α -Butyrolactono) derivatives of 5-substituted uracils," *Khim. Geterotsikl. Soedin.*, 557-558 (1968).
4. D. Ya. Sniker, R. A. Zhuk, É. I. Stankevich, G. Ya. Dubur, and S. A. Giller, "Analogues of pyrimidine nucleosides. III. N_1 -(α -Furanidyl)-5,6-dihydrouracil derivatives," *Khim. Geterotsikl. Soedin.*, 170-172 (1969).
5. S. A. Giller, M. Yu. Lidak, R. A. Zhuk, A. É. Berzinya, K. Ya. Pets, I. N. Getsova and E. I. Bruk, "Analogues of pyrimidine nucleosides. IV. Silyl method for the preparation of N_1 -(α -furanidyl)- and N_1 -(α -pyranidyl) derivatives of uracils and 6-azauracils," *Khim. Geterotsikl. Soedin.*, 375-377 (1969).
6. S. A. Giller, R. A. Zhuk, and M. Yu. Lidak, "Method for the preparation of N-substituted furanidylpyrimidines," USSR Author's Certificate No. 272307; *Byul. Izobr.*, No. 19, 28 (1970).
7. S. A. Giller, R. A. Zhuk, M. Yu. Lidak, A. É. Berzinya, I. N. Getsova, K. Ya. Pets, and É. I. Bruk, "Method for the preparation of N_1 -furanidyl- or N_1 -pyranidyl derivatives of 5-substituted uracils or 6-azauracils," USSR Author's Certificate No. 287952; *Byul. Izobr.*, No. 36, 32 (1970).
8. R. A. Zhuk, Yu. Yu. Popelis, and S. A. Giller, "Analogues of pyrimidine nucleosides. V. UV spectra and protolysis constants of N_1 -(2'-furanidyl)- and N_1 -(α -butyrolactono)-5-substituted uracils," *Khim. Geterotsikl. Soedin.*, 546-549 (1970).
9. R. A. Zhuk, A. É. Berzinya, G. G. Volynkina, and S. A. Giller, "Analogues of pyrimidine nucleosides. VI. Kinetics of the acid hydrolysis of N_1 -(2'-furanidyl)- and N_1 -(2'-pyranidyl) derivatives of uracil, thymine, and 5-fluorouracil," *Khim. Geterotsikl. Soedin.*, 550-553 (1970).
10. S. A. Giller, A. Ya. Perkone, I. N. Getsova, A. B. Rozenblit, and V. E. Golender, " N_1 -(2-Furoylmethyl)- and N_1 -(5-nitro-2-furoylmethyl) derivatives of uracil and 5-substituted uracils," *Khim. Geterotsikl. Soedin.*, 1268-1270 (1971).
11. S. A. Giller, R. A. Zhuk, A. É. Berzinya, and L. A. Sherinya, "Method for the preparation of N_1 -(butyrolactono- γ -methylene)-5-substituted uracils," USSR Author's Certificate No. 348563; *Byul. Izobr.*, No. 25, 91 (1972).
12. S. A. Giller, R. A. Zhuk, M. Yu. Lidak, and A. A. Ziderman, " N_1 -(2'-Furanidyl) derivatives of 5-substituted uracils," US Patent No. 3635946 (1972).
13. S. A. Giller, I. N. Goncharova, I. N. Getsova, L. I. Mironova, É. I. Bruk, G. F. Nazarova, and L. N. Petrulyanis, "Analogues of purine nucleosides and purine mono- and polynucleotides. I. Synthesis of phosphate esters of 6-substituted 9-(α , ω -dihydroxy-2-alkyl)purines," *Khim. Geterotsikl. Soedin.*, 1674-1679 (1974).
14. S. A. Giller, I. N. Getsova, I. N. Goncharova, L. N. Petrulyanis, L. I. Mironova, G. F. Nazarova, and É. I. Bruk, "Analogues of purine nucleosides and purine mono- and polynucleotides. II. Substituted α -(9-puriny)- γ -butyrolactones," *Khim. Geterotsikl. Soedin.*, 1680-1683 (1974).
15. S. A. Giller, I. N. Goncharova, I. N. Getsova, Yu. A. Benders, and Ya. P. Stradyn', "Analogues of purine nucleosides and purine mono- and polynucleotides. III. Intermolecular and intramolecular interactions in 6-substituted 9-(α , ω -dihydroxyalkyl)purines," *Khim. Geterotsikl. Soedin.*, 1684-1689 (1974).
16. S. A. Giller, R. A. Zhuk, A. É. Berzinya, L. T. Kaulinya, and L. Ya. Sherin', "Analogues of pyrimidine nucleosides. VII. 5-Substituted N_1 -(1,4-dihydroxy-2-butyl)- and N_1 -(2,5-dihydroxy-1-pentyl)uracils," *Khim. Geterotsikl. Soedin.*, 1662-1665 (1974).
17. R. A. Zhuk, L. A. Sherin', É. É. Liepin'sh, and S. A. Giller, "Analogues of pyrimidine nucleosides. VIII. Synthesis and properties of substituted α -(1-uracilyl)- γ -methyl- γ -butyrolactones and N_1 -(1,4-dihydroxy-2-pentyl)uracils," *Khim. Geterotsikl. Soedin.*, 1666-1670 (1974).

18. S. A. Giller, L. A. Sherin', R. A. Zhuk, and A. É. Berzinya, "Analogues of pyrimidine mono- and polynucleotides. I. Diphosphates of N₁-(1,4-dihydroxy-2-butyl) derivatives of uracil and thymine," *Khim. Geterotsikl. Soedin.*, 1671-1673 (1974).
19. S. A. Giller and Z. A. Shomshtein, "Synthesis of N₁-(3-furanidyl)thymine," *Khim. Geterotsikl. Soedin.*, 1700-1701 (1974).
20. S. A. Giller, I. N. Goncharova, I. N. Getsova, L. N. Petruyanis, L. I. Mironova, E. I. Bruk, and É. É. Liepin'sh, "Analogues of purine nucleosides and purine mono- and polynucleotides. IV. Acylation of 6-substituted 9-(α,ω -dihydroxy-2-alkyl)purines," *Khim. Geterotsikl. Soedin.*, 132-137 (1975).
21. S. A. Giller, T. A. Popova, and Z. A. Shomshtein, "Analogues of pyrimidine mono- and polynucleotides. II. Phosphorylation of N₁-(1,4-dihydroxy-2-butyl)thymine," *Khim. Geterotsikl. Soedin.*, 401-408 (1975).
22. S. A. Giller, Z. A. Shomshtein, and T. A. Popova, "Analogues of pyrimidine mono- and polynucleotides. III. Analogues of oligothymidylic acid," *Khim. Geterotsikl. Soedin.*, 409-416 (1975).
23. S. A. Giller, Z. A. Shomshtein, and T. A. Popova, "Analogues of pyrimidine mono- and polynucleotides. IV. Reaction of a polythymidylic acid analog based on N₁-(1,4-dihydroxy-2-butyl)-thymine with polyadenylic acid," *Khim. Geterotsikl. Soedin.*, 416-421 (1975).
24. S. A. Giller, Z. A. Shomshtein, and T. A. Popova, "Analogues of pyrimidine mono- and polynucleotides. V. Synthesis of models of di- and trinucleotides by thermal polycondensation," *Khim. Geterotsikl. Soedin.*, 540-543 (1975).
25. S. A. Giller, R. A. Zhuk, A. É. Berzinya, and L. T. Kaulinya, "Analogues of pyrimidine nucleosides. IX. N₁-Dihydroxyalkyl derivatives of cytosine," *Khim. Geterotsikl. Soedin.*, 694-699 (1975).
26. S. A. Giller, É. Ya. Gren, Z. A. Shomshtein, R. A. Zhuk, V. M. Berzin', N. P. Pumpen, and G. F. Rozental', "Synthesis and properties of analogues of polynucleotides based on N₁-(1,4-dihydroxy-2-butyl)thymine," *Dokl. Akad. Nauk SSSR*, 221, 473-476 (1975).
27. S. A. Giller, R. A. Zhuk, A. É. Berzin', L. A. Sherin', and A. A. Zidermane, "Method for the preparation of N₁-(α -butyrolactono)- and N₁-(α -valerolactono)-5-substituted uracils," British Patent No. 1386205 (1975).
28. S. A. Giller, R. A. Zhuk, A. É. Berzin', and L. A. Sherin', "Method for the preparation of N₁-(dihydroxyalkyl) derivatives of 5-substituted uracils," British Patent No. 1393863 (1975).
29. Z. A. Shomshtein and S. A. Giller, "Model analogues of nucleic acids," *Khim. Geterotsikl. Soedin.*, 27-42 (1976).

V. Modified Antibiotics

1. G. I. Kleiner, S. A. Giller, G. P. Sokolov, and A. D. Kosyanich, "Method for the preparation of benzylpenicillin diethylaminoethyl ester hydriodide," USSR Author's Certificate No. 122847; *Byul. Izobr.*, No. 19, 33 (1959).
2. Ya. A. Kastron, G. A. Veinberg, R. A. Gavar, and S. A. Giller, "2,4-Dimethyl-5-nitro-furan-3-carboxylic acid and its derivatives," *Khim. Geterotsikl. Soedin.*, 863-867 (1966).
3. Ya. A. Kastron, G. A. Veinberg, and S. A. Giller, "Semisynthetic nitrofuranyl penicillins," *Dokl. Akad. Nauk SSSR*, 175, 88-91 (1967).
4. G. A. Veinberg, Ya. A. Kastron, and S. A. Giller, "Semisynthetic penicillins of the furfurylidene- and 5-nitrofurfurylidenehomophthalic series," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 55-63 (1968).
5. Ya. A. Kastron, G. A. Veinberg, L. V. Kruzmetra, A. Ya. Zile, and S. A. Giller, "Semisynthetic nitrofuranyl penicillins and their antimicrobial properties," in: *Semisynthetic Penicillins* [in Russian], Moscow (1969), pp. 40-43.
6. G. A. Veinberg, Ya. A. Kastron, and S. A. Giller, "Hydrolysis of furan and 5-nitrofuranyl penicillins by the penicillinase *Bacillus licheniformis*," *Khim. Geterotsikl. Soedin.*, 295-298 (1971).
7. A. D. Voitenko, Ya. A. Kastron, K. K. Medne, and S. A. Giller, "Reaction of 2,5-diformyl-furan with D-cycloserine," *Khim.-Farmats. Zh.*, 24-26 (1972).
8. Ya. A. Kastron, V. V. Novikova, É. É. Liepin', and S. A. Giller, "Synthesis of derivatives of oleandomycin aminohydrin," *Khim. Geterotsikl. Soedin.*, 168-171 (1974).
9. É. A. Rudzit, G. Kh. Khisamutdinov, D. A. Kulikova, T. P. Radkevich, L. I. Lisitsa, Ya. A. Kastron, G. A. Veinberg, and S. A. Giller, "Some correlations between structure and effect in a number of furan derivatives of 6-aminopenicillanic acid," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 104-109 (1974).

VI. Catalytic Synthesis of Heterocyclic Compounds

1. S. A. Giller and M. V. Tarvid, "Catalytic vapor-phase oxidation of furan by air oxygen," *Izv. Akad. Nauk LatvSSR*, No. 11, 89-92 (1952).
2. M. V. Tarvid, S. A. Giller, and P. F. Kalnin'sh, "Catalytic oxidation of furfural in the vapor-gas phase by air oxygen," *Izv. Akad. Nauk LatvSSR*, No. 11, 57-88 (1952).
3. A. Ya. Karmil'chik and S. A. Giller, "Isolation of furan from the contact gases formed in the vapor-phase decarbonylation of furfural by means of organic solvents," *Izv. Akad. Nauk LatvSSR*, No. 8, 105-108 (1956).
4. A. Ya. Karmil'chik and S. A. Giller, "Modification of an oxide catalyst for the vapor-phase decarbonylation of furfural by means of alkali-metal salts," in: *Problems in the Chemistry of Timber and Wood* [in Russian], Riga (1957), pp. 272-281.
5. A. Ya. Karmil'chik and S. A. Giller, "Vapor-phase decarbonylation of furfural over a catalyst obtained from a mixture of aluminum, chromium, zinc, and manganese oxides," in: *Problems in the Chemistry of Timber and Wood* [in Russian], Riga (1957), pp. 251-269.
6. S. A. Giller and A. Ya. Karmil'chik, "Method for the isolation of furan from the contact gases formed in the vapor-phase decarbonylation of furfural," *USSR Author's Certificate* No. 110962; *Byul. Izobr.*, No. 1, 25 (1958).
7. S. A. Giller, "Decarbonylation of furfural over quicklime," in: *Problems in the Utilization of Pentosan-Containing Raw Material* [in Russian], Riga (1958), pp. 299-308.
8. S. A. Giller, A. Ya. Karmil'chik, V. I. Lutkova, and L. D. Pertsov, "Method for the preparation of a catalyst for the vapor-phase preparation of furan from furfural," *USSR Author's Certificate* No. 115346; *Byul. Izobr.*, No. 10, 26 (1958).
9. A. Ya. Karmil'chik and S. A. Giller, "Study of the vapor-phase decarbonylation of furfural over a catalyst obtained from a mixture of aluminum, chromium, zinc, and manganese oxides," in: *Problems in the Utilization of Pentosan-Containing Raw Material* [in Russian], Riga (1958), pp. 327-339.
10. M. V. Shimanskaya and S. A. Giller, "Effect of the composition of vanadium catalysts on their activity in the vapor-phase oxidation of furfural," *Izv. Akad. Nauk LatvSSR*, No. 9, 93-102 (1960).
11. V. A. Slavinskaya, M. V. Shimanskaya, S. A. Giller, and I. I. Ioffe, "Kinetics of the vapor-phase catalytic oxidation of furfural," *Kinet. Katal.*, No. 2, 252-257 (1961).
12. A. Ya. Karmil'chik and S. A. Giller, "Mechanism of the vapor-phase decarbonylation of furfural over oxide catalysts," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 559-562 (1962).
13. L. Ya. Leitis, M. V. Shimanskaya, and S. A. Giller, "Effect of dimerization of formaldehyde in the vapor-gas phase over vanadium catalysts," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 455-461 (1962).
14. S. A. Giller, I. I. Ioffe, V. A. Slavinskaya, and M. V. Shimanskaya, "Method for the preparation of maleic anhydride," *USSR Author's Certificate* No. 151684; *Byul. Izobr.*, No. 22, 26 (1962).
15. S. A. Giller, A. A. Avot, I. I. Ioffe, V. A. Slavinskaya, and M. V. Shimanskaya, "Method for the preparation of maleic anhydride," *USSR Author's Certificate* No. 158572; *Byul. Izobr.*, No. 22, 11 (1963).
16. A. A. Anderson, S. A. Giller, M. Ya. Zavitskaya, I. I. Ioffe, D. K. Kurgan, and M. V. Shimanskaya, "Method for the preparation of piperazine," *USSR Author's Certificate* No. 166033; *Byul. Izobr.*, No. 21, 15 (1964).
17. A. Ya. Karmil'chik and S. A. Giller, "Semiconductor catalysts for the decarbonylation of furfural," in: *Scientific Foundations of the Selection and Production of Catalysts* [in Russian], Novosibirsk (1964), pp. 255-261.
18. A. A. Avot, S. A. Giller, G. V. Glemite, M. K. Sile, and M. V. Shimanskaya, "Method for the preparation of maleic anhydride," *USSR Author's Certificate* No. 175500; *Byul. Izobr.*, No. 20, 21 (1965).
19. A. A. Anderson, D. K. Kurgan, S. A. Giller, and M. V. Shimanskaya, "Dehydration of ethanolamine on oxide catalysts," in: *Piperazine* [in Russian], Riga (1965), pp. 25-39.
20. S. A. Giller, M. V. Shimanskaya, B. É. Gofman, and A. A. Anderson, "Deamination of diethylenetriamine at atmospheric pressure," in: *Piperazine* [in Russian], Riga (1965), pp. 41-54.
21. S. A. Giller, A. Ya. Karmil'chik, and M. V. Shimanskaya, "Method for the preparation of α -methylfuran," *USSR Author's Certificate* No. 186500; *Byul. Izobr.*, No. 19, 36 (1966).
22. A. A. Anderson, S. P. Yurel', M. V. Shimanskaya, and S. A. Giller, "Vapor-phase catalytic determination of polyfunctional amines," *Dokl. Akad. Nauk SSSR*, 169, 1332-1334 (1966).

23. A. Ya. Karmil'chik, G. É. Domburg, M. V. Shimanskaya, and S. A. Giller, "Thermographic study of one of the steps in the production of catalysts used for the preparation of furan and α -methylfuran," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 751-753 (1967).
24. A. Ya. Karmil'chik, V. V. Stonkus, S. A. Giller, and M. V. Shimanskaya, "Vapor-phase decarbonylation of 5-methylfurfural over **mixed-oxide** catalysts," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 585-590 (1967).
25. A. Ya. Karmil'chik and S. A. Giller, "Method for the preparation of a catalyst for the vapor-phase preparation of furan," USSR Author's Certificate No. 191490; *Byul. Izobr.*, No. 4, 21 (1967).
26. A. A. Avot, S. A. Giller, D. P. Kikust, D. R. Kreile, É. É. Paulane, V. A. Slavinskaya, M. V. Shimanskaya, and D. Ya. Églite, "Method for the preparation of maleic anhydride," USSR Author's Certificate No. 234384; *Byul. Izobr.*, No. 18, 194 (1969).
27. S. A. Giller, M. V. Shimanskaya, B. E. Gofman, and A. A. Lazdyn'sh, "Method for the liquid-phase catalytic deaminocyclization of diethylenetriamine or a mixture of **diethylenetriamine with triethyletetramine** and tetraethylenepentamine," USSR Author's Certificate No. 271525; *Byul. Izobr.*, No. 18, 26 (1970).
28. A. Ya. Karmil'chik and S. A. Giller, "Method for the preparation of a catalyst for the synthesis of furan by vapor-phase decarbonylation of furfural," USSR Author's Certificate No. 305906; *Byul. Izobr.*, No. 19, 23 (1971).
29. S. A. Giller, M. V. Shimanskaya, B. É. Gofman, and A. A. Lazdyn'sh, "Method for the liquid-phase catalytic diaminocyclization of ethylenediamine, diethylenetriamine, and higher oligomers of ethylenediamine," USSR Author's Certificate No. 311915; *Byul. Izobr.*, No. 25, 99 (1971).
30. A. Ya. Karmil'chik and S. A. Giller, "Mechanism of the vapor-phase catalytic **decarbonylation** of furan aldehydes," in: *Heterogeneous Catalysis in Reactions for the Preparation and Conversion of Heterocyclic Compounds* [in Russian], Riga (1971), pp. 35-60.
31. A. Ya. Karmil'chik, V. V. Stonkus, and S. A. Giller, "Catalytic decarbonylation of mixtures of methylfurfural and furfural," in: *Heterogeneous Catalysis in Reactions for the Preparation and Conversion of Heterocyclic Compounds* [in Russian], Riga (1971), pp. 61-67.
32. M. V. Shimanskaya, S. A. Giller, and I. I. Ioffe, "Vapor-phase catalytic oxidation of furan compounds," in: *Heterogeneous Catalysis in Reactions for the Preparation and Conversion of Heterocyclic Compounds* [in Russian], Riga (1971), pp. 5-24.
33. M. V. Shimanskaya, B. É. Gofman, A. A. Lazdyn'sh, and S. A. Giller, "Catalytic deaminocyclization of polyfunctional amines in the liquid phase," in: *Heterogeneous Catalysis in Reactions for the Preparation and Conversion of Heterocyclic Compounds* [in Russian], Riga (1971), pp. 185-194.
34. A. Ya. Karmil'chik, V. V. Stonkus, and S. A. Giller, "Research on the vapor-phase catalytic conversion of γ -butyrolactone," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 167-173 (1972).
35. S. A. Giller, V. A. Slavinskaya, I. A. Milman, É. E. Dzilyuma, D. R. Kreile, D. Ya. Églite, M. V. Shimanskaya, and A. K. Strautin', "Method for the vapor-phase catalytic oxidation of furan to maleic anhydride," USSR Author's Certificate No. 406828; *Byul. Izobr.*, No. 46, 67 (1973).
36. S. A. Giller, É. E. Dzilyuma, V. A. Slavinskaya, I. A. Milman, I. I. Geiman, D. R. Kreile, and G. P. Sokolov, "Method for the preparation of maleic anhydride," USSR Author's Certificate No. 385957; *Byul. Izobr.*, No. 26, 82 (1973).
37. S. A. Giller, and M. V. Shimanskaya, "Mechanism of the catalytic reactions in the oxidation of furan and pyridine compounds," in: *Mechanisms and Kinetics of Heterogeneous Reactions* [in Russian], Nauka, Moscow (1973), pp. 47-55.
38. S. A. Giller, A. Ya. Karmil'chik, V. V. Stonkus, É. Kh. Korchagova, Zh. G. Baikova, and M. V. Shimanskaya, "Method for the preparation of methyl propyl ketone," USSR Author's Certificate No. 386906; *Byul. Izobr.*, No. 27, 61 (1973).
39. A. Ya. Karmil'chik, V. V. Stonkus, M. V. Shimanskaya, and S. A. Giller, "Vapor-phase conversion of ethanol over a promoted chromium-zinc-manganese catalyst," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 421-426 (1974).
40. S. A. Giller, V. I. Gryaznov, L. F. Pavlova, L. F. Bulenkova, Ya. F. Oshis, and M. V. Shimanskaya, "Conversion of heterocyclic compounds on membrane catalysts," *Khim. Geterotsikl. Soedin.*, 599-602 (1975).
41. E. Dzilyuma, S. Giller (Hiller), S. Slavinskaya (Slavinska), V. Evgrashin, D. Kreile, A. Strautina, and J. Milman, "Some aspects of the genesis of vanadium catalysts for vapor-phase oxidation and oxidative ammonolysis of heterocyclic and other compounds. Scientific bases

- for the preparation of heterogeneous catalysis." An International Symposium, Brussels, 1975, B5, 1-10 (1975).
42. S. Giller (Hiller), A. Karmil'chik (Karmilchik), V. Stonkus, B. Kataev (Katayev), and M. Shimanskaya (Shymanska), Promoted chromium-zinc-manganese oxide catalyst for decarbonylation reactions and scientific principles of its preparation. An international Symposium, Brussels, 1975, F4, 1-8.

VII. Physical Organic Chemistry

1. G. Ya. Vanag, Ya. A. Éidus,* and S. A. Giller, "Tautomerism and isomerism of 2-nitroindane-1,3-dione," Dokl. Akad. Nauk SSSR, 79, 977-980 (1951).
2. Ya. P. Stradyn' and S. A. Giller, "Mechanism of the polarographic reduction of 2-nitrofuran," Izv. Akad. Nauk LatvSSR, No. 10, 121-126 (1958).
3. Ya. P. Stradyn', S. A. Giller, and A. Ya. Dzene, "Polarographic reduction of some 5-nitrofuran derivatives used as chemotherapeutic agents," Izv. Akad. Nauk LatvSSR, No. 12, 71-78 (1959).
4. Ya. P. Stradyn', S. A. Giller, and Yu. K. Yur'ev, "Polarographic reduction of 2-nitrofuran and 2-nitroselenophene derivatives," Dokl. Akad. Nauk SSSR, 129, 816-819 (1959).
5. Ya. P. Stradyn, S. A. Giller, Yu. K. Yur'ev, and E. L. Zaitseva, "Polarographic study of 2-nitroselenophene derivatives," Izv. Akad. Nauk LatvSSR, No. 3, 85-92 (1960).
6. Ya. P. Stradyn' and S. A. Giller, "Polarographic study of 5-substituted 2-nitrofuran derivatives," Izv. Akad. Nauk LatvSSR, No. 2, 95-100 (1960).
7. Ya. A. Éidus, K. K. Venter, and S. A. Giller, "Effect of terminal substituents in 5-nitrofurylpolyene derivatives and their electronic spectra," Dokl. Akad. Nauk SSSR, 141, 655-658 (1961).
8. I. B. Mazheika, S. A. Giller, P. A. Gembitskii, R. Ya. Levina, "Dipole moments of some phenylcyclopropane derivatives," Zh. Obshch. Khim., 33, 1698-1699 (1963).
9. R. A. Gavar, Ya. P. Stradyn', and S. A. Giller, "Electrochemical generation of free-radical anions in a number of 5-nitrofuran derivatives," Izv. Akad. Nauk LatvSSR, Ser. Khim., 381 (1964).
10. R. A. Gavar, Ya. P. Stradyn', and S. A. Giller, "Electrochemical generation of free-radical anions in the 5-nitrofuran series," Dokl. Akad. Nauk SSSR, 157, 1424-1426 (1964).
11. R. A. Gavar, Ya. P. Stradyn', and S. A. Giller, "Recording of the ESR spectra of short-lived free-radical anions," Zavod. Lab., 31, 41-45 (1965).
12. S. A. Giller, I. B. Mazheika, and I. I. Grandberg, "Electron density distribution in heterocyclic systems with two adjacent nitrogen atoms. II. Dipole moment of pyrazole," Khim. Geterotsikl. Soedin., 103-106 (1965).
13. S. A. Giller, I. B. Mazheika, and I. I. Grandberg, "Electron density distribution in heterocyclic systems with two adjacent nitrogen atoms. III. Dipole moments of some alkyl, aryl, and nitro derivatives of pyrazole," Khim. Geterotsikl. Soedin., 107-111 (1965).
14. A. Ya. Karmil'chik, S. A. Giller, and M. V. Shimanskaya, "Isotope exchange of furan with heavy water," Izv. Akad. Nauk LatvSSR, Ser. Khim., 328-331 (1966).
15. J. Stradins, R. Gawars, G. Reihmanis, and S. Giller (Hillers), "Untersuchungen von intermediären Reduktionsprodukten der 2-Nitrofuran-Derivate mit Hilfe der Polarographie und der ESR Spektrometrie," in: Electrochemische Methoden und Prinzipien in der Molekular Biologie. III Jenaer Symposium, 25 bis 29 Mai, 1965. Vorträge und Diskussionen. Berlin, 1966, pp. 601-610 (Abhandlungen der Deutschen Akademie der Wissenschaften zu Berlin. Klasse für Medizin, 1966, 4).
16. I. B. Mazheika, G. I. Chipen, and S. A. Giller, "Electron density distribution in heterocyclic systems with two adjacent nitrogen atoms. IV. Dipole moments of some 1,2,4-triazole derivatives," Khim. Geterotsikl. Soedin., 776-782 (1966).
17. S. A. Giller, I. B. Mazheika, I. I. Grandberg, and L. I. Gorbacheva, "Electron density distribution in heterocyclic systems with two adjacent nitrogen atoms. V. Dipole moments of some halo, amino, and hydroxy derivatives of pyrazole," Khim. Geterotsikl. Soedin., 130-134 (1967).
18. S. A. Giller, I. B. Mazheika, and I. I. Grandberg, "Electron density distribution in heterocyclic systems with two adjacent nitrogen atoms. VI. Dipole moments of some bis-pyrazole systems and polycondensed systems containing a pyrazole ring," Khim. Geterotsikl. Soedin., 884-888 (1967).

* Deceased.

19. Ya. A. Éidus, A. Ya. Ékmane, K. K. Venter, and S. A. Giller, Atlas of the Electronic Spectra of 5-Nitrofurane Compounds [in Russian], Zinatne, Riga (1968), p. 160.
20. J. Éidus, A. Ya. Ekmane, K. K. Venters, and S. A. Giller (Hilier), Atlas of Electronic Spectra of 5-Nitrofurane Compounds, Ann Arbor Sci. Publishers, Inc., Portland, Oregon (1970).
21. K. K. Venter, Ya. A. Eidus, D. O. Lolya, and S. A. Giller, "Syntheses involving 5-nitro-2-furypolyalkenals and 5-nitro-2-furypolyalkenones. VIII. Synthesis and electronic and vibrational spectra of some ω, ω' -bis-(5-nitro-2-furyl)polyalkenes," Khim. Geterotsikl. Soedin., 405-412 (1968).
22. Ya. P. Stradyn', R. A. Gavar, V. K. Grin', and S. A. Giller, "Stability and kinetics of the disappearance of anion radicals of the nitrofurane series," Teor. Eksp. Khim. (Kiev), No. 4, 774-779 (1968).
23. M. G. Voronkov, S. A. Giller, I. N. Goncharova, L. I. Mironova, and V. P. Feshin, " ^{35}Cl Nuclear quadrupole resonance of alkane- α, ω -dicarboxylic acid chlorides," Izv. Akad. Nauk LatvSSR, Ser. Khim., 250-251 (1969).
24. G. P. Sokolov and S. A. Giller, "Synthesis of cyclic diacetals of fumaraldehyde, α, α' -dibromosuccinaldehyde, and 2-butynedial," Khim. Geterotsikl. Soedin., 32-35 (1969).
25. R. A. Gavar, V. A. Zilitis, Ya. P. Stradyn', and S. A. Giller, " π -Electron structure of the nitrofurane system. I. Distribution of the unpaired electron in anion radicals of 5-nitrofurane and its 2-substituted derivatives," Khim. Geterotsikl. Soedin., 294-298 (1970).
26. R. A. Gavar, V. A. Zilitis, Ya. P. Stradyn', and S. A. Giller, " π -Electron structure of the nitrofurane system. II. Molecular orbitals of the π electrons of 5-nitrofurane and its 2-substituted derivatives," Khim. Geterotsikl. Soedin., 3-8 (1971).
27. A. D. Garnovskii, Yu. V. Kolodyazhnyi, O. A. Osipov, V. I. Minkin, S. A. Giller, I. B. Mazheika, and I. I. Grandberg, "Dipole moments and structures of azoles," Khim. Geterotsikl. Soedin., 867-892 (1971).
28. G. O. Reikhsmanis, Ya. P. Stradyn', R. A. Gavar, and S. A. Giller, "Electrochemical and protolytic transformations of α -phenyl- and α -(2-furyl)- β -nitroethylene," Zh. Obshch. Khim., 41, 906-910 (1971).
29. I. K. Tutane, Ya. P. Stradyn', B. V. Kurgan, and S. A. Giller., "Polarographic behavior of thiol ethers of aromatic and furane carboxylic acids," Zh. Obshch. Khim., 41, 1912-1915 (1971).
30. Ya. P. Stradyn', I. Ya. Kravis, G. O. Reikhsmanis, and S. A. Giller, "Polarographic study of the conductivity of the polar effect of a substituent through the furane ring and side bridged groupings," Khim. Geterotsikl. Soedin., 1309-1312 (1972).
31. R. A. Gavar, L. Kh. Bauman, Ya. P. Stradyn', and S. A. Giller, " π -Electron structure of the nitrofurane system. III. Effect of the medium on the character of the ESR spectra of anion radicals of 5-nitrofurans," Khim. Geterotsikl. Soedin., 435-440 (1972).
32. I. V. Turovskii, V. T. Glezer, L. Ya. Avota, Ya. P. Stradyn', and S. A. Giller, "Protolysis constants of 6-pyridazone derivatives," Khim. Geterotsikl. Soedin., 993-995 (1973).
33. Ya. P. Stradyn', V. P. Kadysh, and S. A. Giller, "Polarography of heterocyclic compounds. I. General data on the polarographic behavior of heterocycles and electrochemical reduction of heteroaromatic compounds," Khim. Geterotsikl. Soedin., 1587-1603 (1973).
34. V. T. Glezer, Ya. P. Stradyn', I. K. Tutane, L. Ya. Avota, and S. A. Giller, "Polarographic reduction of 6-pyridazone and its derivatives," Zh. Obshch. Khim., 43, 1150-1153 (1973).
35. G. P. Sokolov and S. A. Giller, "Stereochemistry of bisdioxolane systems. I. Synthesis and configuration of isomers of 1,2-bis[4-(p-tosyloxymethyl)-1,3-dioxolan-2-yl]ethane," Khim. Geterotsikl. Soedin., 1608-1610 (1973).
36. R. A. Gavar, L. Kh. Bauman, Ya. P. Stradyn', and S. A. Giller, " π -Electron structure of the nitrofurane system. IV. ESR Spectra of the anion radicals of 2-vinylene derivatives of 5-nitrofurane," Khim. Geterotsikl. Soedin., 324-329 (1974).
37. B. V. Kurgan, A. K. Grinvalde, Ya. P. Stradyn', M. T. Brakmane, and S. A. Giller, "Enolizability of thiol esters of acetoacetic and malonic acids," Zh. Organ. Khim., 11, 2306-2309 (1974).
38. Ya. P. Stradyn', V. P. Kadysh, and S. A. Giller, "Polarography of heterocyclic compounds. II. Heteroethylene and heteroparaffin compounds. Effect of substituents in the side chain on the parameters of electrical reduction of heterocyclic compounds," Khim. Geterotsikl. Soedin., 147-162 (1974).
39. V. A. Pestunovich, V. G. Sidorkin, V. A. Shagun, M. G. Voronkov, S. A. Giller, É. É. Liepin'sh, and A. V. Ereemeev, "Conformational analysis of 2-phenyl-1,3-diazabicyclo[3.1.0]hexane," Khim. Geterotsikl. Soedin., 936-940 (1975).

40. S. A. Giller, É. É. Liepin'sh, A. V. Ereemeev, and V. A. Kholodnikov, "PMR spectra of 1,3-diazabicyclo[3.1.0]hexanes in the presence of tris(dipivaloylmethanato)europium," *Khim. Geterotsikl. Soedin.*, 940-942 (1975).

VIII. Organic Analysis

1. Ya. P. Stradyn', S. A. Giller, and L. K. Lepin', "Determination of the solubility of nitrofurans in water by means of polarography," *Izv. Akad. Nauk LatvSSR*, No. 1, 113-120 (1958).
2. S. A. Giller, A. Ya. Krauya, and Z. Ya. Zelmene, "Method for the quantitative determination of mercury in mercurichlorides of the furan series," *Izv. Akad. Nauk LatvSSR*, No. 4, 75-79 (1959).
3. M. V. Shimanskaya, S. A. Giller, and V. A. Slavinskaya "Standardization of the quality of industrial-grade furfural," *Khim. Prom. (Riga)*, No. 2, 20-22 (1961).
4. V. É. Égert, M. V. Shimanskaya, and S. A. Giller, "Methods for the quantitative determination of 5-nitrofurans. I. Modified Kjeldahl method for the determination of 5-nitrofurfural derivatives," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 55-60 (1961).
5. V. É. Égert, M. V. Shimanskaya, and S. A. Giller, "Methods for the quantitative determination of 5-nitrofurans. III. Colorimetry," *Akad. Nauk LatvSSR, Ser. Khim.*, 199-204 (1961).
6. S. A. Giller, V. É. Égert, and M. V. Shimanskaya, "Analytical determination of furazolidone," in: *Furazolidone* [in Russian], *Izd. Akad. Nauk LatvSSR, Riga* (1962), pp. 17-27.
7. V. É. Égert, M. V. Shimanskaya, and S. A. Giller, "Methods for the quantitative determination of 5-nitrofurans. IV. Potentiometric determination of N-(5'-nitro-2'-furfurylidene)-1-aminohydantoin (furadonine)," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 39-43 (1962).
8. S. A. Giller, V. É. Égert, M. V. Shimanskaya, and S. K. Germane, "Methods for the quantitative determination of 5-nitrofurans. V. Spectrophotometric determination on N-(5'-nitro-2'-furfurylidene)-3-amino-2-oxazolidone (furazolidone) in the presence of some impurities," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 577-581 (1962).
9. A. A. Anderson, A. Ya. Karmil'chik, M. V. Shimanskaya, and S. A. Giller, "Application of gas-liquid chromatography for the analysis of furan and its derivatives," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 168-176 (1963).
10. Ya. P. Stradyn', I. F. Aizpuriete, and S. A. Giller, "Polarographic study of a new antibacterial preparation - furazoline," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 29-34 (1963).
11. Ya. P. Stradyn', I. K. Tutane, M. A. Alberta, and S. A. Giller, "Polarographic behavior of furothiazole [2-acetamido-4-(5-nitro-2-furyl)-thiazole]," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 371-376 (1963).
12. V. É. Égert, M. V. Shimanskaya, and S. A. Giller, "Methods for the quantitative determination of 5-nitrofurans. VI. Conductometric determination of 5-nitrofurans derivatives containing a hydantoin ring (furadonine and furazidine)," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 177-180 (1963).
13. V. É. Égert, S. A. Giller, A. A. Lielgalve, and M. V. Shimanskaya, "Methods for the quantitative determination of 5-nitrofurans. VII. Spectrophotometric determination," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 531-540 (1963).
14. A. A. Anderson, A. Ya. Karmil'chik, M. V. Shimanskaya, and S. A. Giller, "Application of gas-liquid chromatography for the analysis of mixtures of furan compounds," in: *Molecular Chromatography* [in Russian], *Izd. Akad. Nauk SSSR, Moscow* (1964), pp. 52-57.
15. A. Ya. Karmil'chik, V. V. Stonkus, M. V. Shimanskaya, and S. A. Giller, "Chromatographic analysis of furfural," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 543-546 (1967).
16. S. A. Giller, V. É. Égert, M. V. Shimanskaya, and Ya. P. Stradyn', "Analytical determination of furagin and solafur," in: *Furagin and Solafur* [in Russian], *Izd. Akad. Nauk LatvSSR, Riga* (1968), pp. 7-31.
17. A. Ya. Karmil'chik, V. V. Stonkus, L. S. Efimova, M. V. Shimanskaya, and S. A. Giller, "Chromatographic analysis of mixtures containing methylfurfural," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 29-32 (1968).
18. S. A. Giller, V. É. Égert, K. K. Venter, N. Ya. Ozolinya, A. A. Lielgalve, and D. O. Lolya, "Analytical determination of maleic acid hydrazide and its salts," in: *Maleic Acid Hydrazide as a Plant-Growth Regulator* [in Russian], *Nauka, Moscow* (1973), pp. 310-318 (1973).
19. A. A. Avots, V. D. Shatts, and A. Ya. Karmil'chik, "Study of the hydrogenolysis of furan derivatives by means of pulse chromatography," in: *Chromatographic Analysis in Wood Chemistry* [in Russian], *Zinatne, Riga* (1975), pp. 162-168.

IX. Interrelationship between Structure and Physiological

Activity

1. S. A. Giller, "Possible reason for the bacterial activity of some organic compounds, particularly derivatives of the furan series," *Izv. Akad. Nauk LatvSSR*, No. 12, 15-44 (1948).
2. K. K. Medne, S. A. Giller, S. K. Germane, and K. K. Venter, "Interrelationship between chemical structure and the antituberculous activity of some compounds of the 5-nitro-furan series," in: *Problems of Tuberculosis [in Russian]*, Vol. 7, Chemotherapy [in Russian], Riga (1967), pp. 373-380.
3. J. Stradin'sh (Stradins), S. Giller (Hiller), R. Gavars, G. Reikhmanis (Reihmanis), and L. Baumanė, "Electrochemical properties and biological activity of nitrofurans," in: *Biological Aspects of Electrochemistry. Proceedings of the First International Symposium, May 31 to June 4, 1971, Basel-Stuttgart (1971)*, pp. 607-617.
4. S. A. Giller, A. B. Glaz, V. E. Golender, L. A. Rastrigin, and A. B. Rozenblit, "Application of the theory of sample recognition for the prediction of the pharmacological activity of chemical compounds," *Khim.-Farmats. Zh.*, No. 12, 18-22 (1972).
5. S. A. Giller, V. E. Golender, A. B. Rosenblit, L. A. Rastrigin, and A. B. Glaz, "Cybernetic methods of drug design. I. Statement of the problem — the perceptron approach," *Computers and Biomed. Res.*, No. 6, 411-414 (1973).

X. Search for and Study of Antibacterial and

Antituberculous Substances

1. S. A. Giller, "Research of the Academy of Sciences of the Latvian SSR on the industrial incorporation and medical adoption of new medicinal preparations [synthesis and production of the antituberculous preparation PASK]," *Izv. Akad. Nauk LatvSSR*, No. 12, 27-46 (1950).
2. S. A. Giller, A. K. Lokenbakh, and L. A. Mai, "Research on the synthesis of 4-aminosalicylic acid," in: *p-Aminosalicylic Acid (PASK) in Tuberculosis Therapy [in Russian]*, *Izd. Akad. Nauk LatvSSR*, Riga (1950), pp. 7-25.
3. S. A. Giller, M. Yu. Lidak, M. Ya. Berklava, and M. V. Tarvid, "Antituberculous activity of a preparation containing isonicotinoylhydrazide," *Izv. Akad. Nauk LatvSSR*, No. 10, 157-160 (1952).
4. S. A. Giller, M. Yu. Lidak, M. Ya. Berklava, and M. V. Tarvid, "Antituberculous activity of a preparation containing isonicotinoylhydrazide," in: *Tubazid [in Russian]*, *Izd. Akad. Nauk LatvSSR*, Riga (1968).
5. S. A. Giller, Ya. P. Stradyn', and N. S. Ratenberg, "Dynamics of the excretion of some new preparations of the nitrofur series from the organism," *Izv. Akad. Nauk LatvSSR*, No. 3, 107-114 (1959).
6. S. P. Zaeva, S. A. Giller, S. K. Germane, Ya. P. Stradyn', L. N. Alekseeva, L. V. Kruzmetra, M. A. Alberta, I. F. Aizpuriete, and R. Yu. Kalnberg, "Experimental study of a new preparation of the nitrofur series — furazoline (F-150)," *Zh. Mikrobiol. Epidemiol. i Immunobiol.*, No. 10, 17-20 (1961).
7. S. A. Giller and R. Yu. Kalnberg, "Synthesis of furazolidone," in: *Furazolidone [in Russian]*, *Izd. Akad. Nauk LatvSSR*, Riga, 5-15 (1962).
8. S. A. Giller, K. K. Medne, K. K. Venter, S. K. Germane, and A. Ya. Zile, "Study of the tuberculostatic activity of some derivatives of unsaturated aldehydes and ketones of the 5-nitrofur series," *Dokl. Akad. Nauk SSSR*, 144, 108-111 (1962).
9. S. A. Giller, S. P. Zaeva, K. K. Venter, L. N. Alekseeva, L. V. Kruzmetra, and S. K. Germane, "Syntheses involving 5-nitro-2-furylpolyalkenals and 5-nitro-2-furylpolyalkenones. VII. Synthesis and study of the antibacterial properties of derivatives of α, β -unsaturated and polyene aldehydes and ketones of the 5-nitrofur series," *Khim. Geterotsikl. Soedin.*, 187-194 (1965).
10. S. A. Giller, A. Ya. Zile, L. V. Kruzmetra, V. I. Vereshchagina, K. K. Venter, and S. P. Korshunov, "Antibiotic activity of some acetylenic derivatives of furan," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 104-108 (1967).
11. R. Yu. Kalnberg, K. K. Venter, B. A. Brizga, L. N. Alekseeva, L. V. Kruzmetra, and S. A. Giller, "Synthesis and antibacterial properties of some 5-morpholinomethyl-3-amino-2-oxazolidone derivatives of the 5-nitrofur series," *Khim.-Farmats. Zh.*, No. 11, 47-49 (1967).

12. S. P. Zaeva, S. A. Giller, M. V. Shimanskaya, V. É. Égert, K. K. Venter, L. V. Kruzmetra, M. A. Alberta, L. N. Alekseeva, S. K. Germane, E. K. Brentsis, F. N. Branover, B. O. Press, and G. A. Grigalinovich, "Experimental study of a new chemotherapeutic preparation — solafur," in: Furagin and Solafur [in Russian], Izd. Akad. Nauk LatvSSR, Riga (1968), pp. 33-40.
13. S. A. Giller, K. K. Medne, and R. Yu. Frim, "Tuberculostatic action of some derivatives of 5-(p-, m-, and o-nitrophenyl)furfurals," Izv. Akad. Nauk LatvSSR, Ser. Khim., 133-136 (1969).
14. N. O. Saldabol, L. N. Alekseeva, B. A. Brizga, L. V. Kruzmetra, and S. A. Giller, "Synthesis and antimicrobial action of furyl-substituted indolizines, imidazo[1,2-a]pyrimidines, and imidazo[1,1-b]thiazoles," Khim.-Farmats. Zh., No. 7, 20-25 (1970).
15. A. F. Blyuger, S. A. Giller, M. K. Indulen, É. N. Kibitkina, É. Z. Krupnikova, Ya. Yu. Polis, E. P. Semushina, and P. P. Khvatov, "Study of the chemoprophylaxis of influenza by means of aminoadamantane derivatives," in: Chemoprophylaxis and Chemotherapy of Influenza [in Russian], Leningrad (1972), pp. 142-145.
16. S. A. Giller, L. A. Vol'f, and A. L. Meos, "Method for the modification of films and fibers in order to impart antibacterial properties to them," French Patent No. 1368858 (1964).
17. S. A. Giller, L. A. Vol'f, and A. I. Meos, "Method for the imparting of antibacterial properties to articles obtained from polyvinyl alcohol," US Patent No. 3390008 (1968).
18. S. A. Giller, V. V. Kotetskii, Ya. A. Kharit, L. A. Vol'f, and K. K. Venter, "Chemical fiber having antibacterial properties," British Patent No. 1254702 (1972).

XI. Study of Fungicidal Preparations

1. S. A. Giller, A. Ya. Zile, and M. Ya. Berklava, "Method for the treatment of skin diseases. The preparation nitrofurylene," USSR Author's Certificate No. 186635; Byul. Izobr., No. 19, 70 (1966).
2. S. A. Giller, M. A. Alberta, A. Ya. Zile, L. I. Vereshchagin, K. K. Venter, and S. P. Korshunov, "Fungistatic activity of some acetylenic derivatives of furan and their effect on the respiratory intensity and the catalase activity of pathogenic fungi," Izv. Akad. Nauk LatvSSR, Ser. Khim., 63-68 (1966).
3. N. O. Saldabol, S. A. Giller, L. N. Alekseeva, and B. A. Brizga, "Syntheses in the methyl 2-furyl ketone series. XII. (5-Nitro-2-furyl)-substituted imidazoheterocyclic compounds with a nitrogen atom in common," Khim.-Farmats. Zh., No. 2, 27-31 (1967).
4. S. A. Giller, A. Ya. Zile, M. Ya. Berklava, B. O. Press, and K. K. Medne, "Fungistatic activity of some alcohols and esters of the nitrofuran series," Izv. Akad. Nauk LatvSSR, Ser. Khim., 121-124 (1969).
5. S. A. Giller, A. Ya. Zile, M. Ya. Berklava, L. V. Kruzmetra, S. K. Germane, B. O. Press, M. A. Alberta, and G. A. Grigalinovich, "Nitrofurylene — A new original Soviet fungistat," in: Experimental and Clinical Pharmacotherapy [in Russian], Vol. 1, Riga (1970), pp. 111-121.

XII. Study of Antiblastic Properties

1. M. Yu. Lidak, S. A. Giller, and A. Ya. Medne, "Synthesis of some bifunctional derivatives of ethyleneimine with antiblastic action," Izv. Akad. Nauk LatvSSR, No. 1, 87-90 (1959).
2. M. Yu. Lidak, S. A. Giller, and A. Ya. Medne, "Synthesis of ThioTEFA," in: ThioTEFA [in Russian], Izd. Akad. Nauk LatvSSR, Riga (1961), pp. 5-8.
3. M. Yu. Lidak and S. A. Giller, "New ethyleneimine-containing cancerolytic polymers. New cancerostatic derivatives of ethyleneimine. Study of the reaction of ethyleneimine with derivatives containing carbonyl and carboxyl functions," in: Methods for the Synthesis of and Search for Antitumorigenic Preparations, [in Russian], Izd. Akad. Med. Nauk SSSR, Moscow (1962), pp. 150-156.
4. S. A. Giller, M. Yu. Lidak, R. K. Bane, and I. Ya. Birkmane, "Synthesis and technology of cyclophosphane," in: Cyclophosphane [in Russian], Izd. Akad. Nauk LatvSSR, Riga (1965), pp. 7-12.
5. S. A. Giller, M. Yu. Lidak, A. A. Zidernane, and A. G. Pinus, "Method for the treatment of erythremia. The preparation 'imifos'," USSR Author's Certificate No. 182877; Byul. Izobr., No. 12, 82 (1966).

6. S. A. Giller, M. Yu. Lidak, and E. Ya. Markava, "Synthesis of new phosphoramides and thiophosphoramides for the treatment of malignant tumors," in: Imifos [in Russian], Izd. Akad. Nauk. LatvSSR, Riga (1968), pp. 11-23.
7. R. Yu. Kalnberg, K. K. Venter, N. M. Sukhova, A. A. Zidermane, A. Zh. Dauvarte, M. Yu. Lidak, and S. A. Giller, "Synthesis and study of the cytotoxic properties of bis(2-chlorethyl)amino and N,N-bis(2-chloroethyl)hydrazino derivatives," Khim.-Farmats. Zh., No. 2, 10-16 (1968).
8. R. Yu. Kalnberg, S. A. Giller, M. Yu. Lidak, L. N. Alekseeva, L. V. Kruzmetra, B. A. Brizga, A. Ya. Zile, and I. O. Petersone, "Synthesis and study of the biological activity of methylthiocarbazonates of unsaturated aldehydes of the 5-nitrofuran series," Khim.-Farmats. Zh., No. 11, 11-13 (1968).
9. S. A. Giller, M. Yu. Lidak, K. K. Venter, R. Yu. Kalnberg, A. A. Ziderman, A. Zh. Dauvarte, and N. M. Sukhova, "Method for the preparation of N,N-[β -(5'-nitro-2'-furyl)-alkylidene]bis(2-chloroethyl)hydrazone(nifurone)," USSR Author's Certificate No. 257508; Byul. Izobr., No. 36, 29 (1969).
10. S. A. Giller, M. Yu. Lidak, N. M. Sukhova, and K. K. Venter, "Method for the preparation of 2-[2'-(5'-nitro-2'-furyl)butadienyl]quinoline derivatives," USSR Author's Certificate No. 242174; Byul. Izobr., No. 15, 26 (1969).
11. S. A. Giller, M. Yu. Lidak, N. M. Sukhova, A. V. Ereemeev, A. A. Ziderman, and I. I. Sablina, "Method for the preparation of substituted hydrazones of 4-carboxy-2-formyl-quinoline derivatives," USSR Author's Certificate No. 333168; Byul. Izobr., No. 11, 97 (1972).
12. A. Zh. Dauvarte, A. A. Ziderman, R. Yu. Kalnberga, M. Yu. Lidak, K. K. Venter, N. M. Sukhova, R. K. Verpele, and S. A. Giller, "Antitumorigenic activity of some derivatives of the 5-nitrofuran series," in: Antitumorigenic Compounds of the 5-Nitrofuran Series. Experimental Studies [in Russian], Zinatne, Riga (1972), pp. 17-24.
13. R. Yu. Kalnberga, S. A. Giller, M. Yu. Lidak, and N. M. Sukhova, "Synthesis of bis(2-chloroethyl)hydrazino and bis(2-chloroethyl)amino derivatives of 5-nitrofuran," in: Antitumorigenic Compounds of the 5-Nitrofuran Series. Experimental Studies [in Russian], Zinatne, Riga (1972), pp. 31-32.
14. A. Zh. Dauvarte, A. A. Zidermane, R. Yu. Kalnberga, M. Yu. Lidak, B. V. Kurgane, N. M. Sukhova, and S. A. Giller, "Antitumorigenic activity of N,N-bis(2-chloroethyl)hydrazino derivatives of aromatic and heterocyclic aldehydes," in: Antitumorigenic Compounds of the 5-Nitrofuran Series. Experimental Studies [in Russian], Zinatne, Riga (1972), pp. 33-37.
15. S. A. Giller, R. A. Zhuk, M. Yu. Lidak, and A. A. Ziderman, "New antitumorigenic preparations based on uracil derivatives," Belgian Patent No. 708903 (1968).
16. S. A. Giller, M. Yu. Lidak, K. K. Venter, R. Yu. Kalnberg, A. A. Ziderman, and A. Zh. Dauvarte, "Method for the preparation of N,N-bis(2-chlorethyl)hydrazones of the 5-nitrofuran series," French Patent No. 154094 (1968); US Patent No. 1137467 (1968); French Patent No. 7161M (1969); Japanese Patent No. 577404 (1970); US Patent No. 3526643 (1970).
17. S. A. Giller, R. A. Zhuk, M. Yu. Lidak, and A. A. Ziderman, "New method for the preparation of uracil derivatives," French Patent No. 1574684 (1969); British Patent No. 1168391 (1969); French Patent No. 7448M (1969).
18. S. A. Giller, M. Yu. Lidak, É. M. Markava, and A. A. Ziderman, "Phosphorus-containing derivatives of diethyleneimide," British Patent No. 1052711 (1967).
19. S. A. Giller, M. Yu. Lidak, É. M. Markava, and A. A. Ziderman, "Method for the preparation of diethyleneimides of phosphoric and thiophosphoric acids," Japanese Patent No. 552461 (1968); West German Patent No. 1285475 (1968); Swiss Patent No. 319771 (1970).
20. S. A. Giller, R. A. Zhuk, M. Yu. Lidak, and A. A. Ziderman, "Method for the preparation of N₁-(2'-tetrahydrofuryl) and N₁-(2'-tetrahydropyranyl) derivatives of 5-substituted uracils and their alkali-metal salts," Swiss Patent No. 493557 (1970).
21. S. A. Giller, M. Yu. Lidak, A. Zh. Dauvarte, R. Yu. Kalnberga, A. A. Stengrevich, V. A. Klyavinya, A. A. Zidermane, and O. I. Starkova, "Method for the preparation of β -bis(2-chlorethyl)hydrazones," USSR Author's Certificate No. 445275; Byul. Izobr., No. 33, 184 (1975).
22. A. A. Lazdyn'sh, D. Ya. Sniker, A. K. Veinberg, S. A. Giller, I. L. Knunyants, L. S. German, and V. A. Kozmina, "Method for the preparation of 5-fluorouracil," British Patent No. 1323785 (1973); US Patent No. 3846429 (1974).
23. S. A. Giller, R. A. Zhuk, A. É. Berzin', L. A. Sherin', and A. A. Lazdyn'sh, "Method for the preparation of N₁-(2'-furanidyl) derivatives of 5-substituted uracils," Belgian Patent No. 807556 (1974).

XIII. Study of Neurotropic and Psychotropic Compounds

1. S. A. Giller, Kh. M. Vasserman, and K. K. Venter, "Synthesis of some new ganglion-blocking and curarelike substances from furfural," in: Problems in the Utilization of Pentosan-Containing Raw Material [in Russian], Riga (1958), pp. 393-401.
2. S. A. Giller, G. P. Sokolov, V. E. Klusha, and A. A. Kimenis, "Method for the preparation of 1,2-bis(4'-pyrrolidinomethyl-1,3'-dioxolan-2'-yl)ethane dimethiodide (dioxonium)," USSR Author's Certificate No. 267634; Byul. Izobr., No. 4, 13 (1959).
3. Kh. M. Vasserman and S. A. Giller, "Utilization of saturated nitrogen-containing heterocycles for the synthesis of ganglion-blocking and curarelike substances," in: Chemistry, Technology, and Application of Pyridine and Quinoline Derivatives [in Russian], Riga (1960), pp. 207-221.
4. S. A. Giller, E. A. Baumanis, G. P. Sokolov, and V. Ya. Grinshtein, "Synthesis and Anti-MAO Activity of Alkylhydrazides of Pyridazine-3-carboxylic Acid," Dokl. Akad. Nauk SSSR, 145, 440-442 (1962).
5. G. P. Sokolov, and S. A. Giller, "Method for the preparation of quaternary salts of 1,2-bis(4'-R,R-aminomethyl-1',3'-dioxolan-2'-yl)ethane," USSR Author's Certificate No. 196883; Byul. Izobr., No. 12, 42 (1967).
6. G. P. Sokolov, V. E. Klusha, A. A. Kimenis, and S. A. Giller, "Synthesis and curarizing action of quaternary salts of bisaminomethyldioxolanylethane and bisaminomethyldioxolanyl ethylene," Khim.-Farmats Zh., No. 3, 3-7 (1968).
7. G. P. Sokolov, S. A. Giller, A. A. Kimenis, V. E. Klusha, and Ya. Ya. Ginters, "Medicinal agent," USSR Author's Certificate No. 278963; Byul. Izobr., No. 26, 82 (1970).
8. G. P. Sokolov, A. A. Kimenis, D. K. Kruskop, V. E. Klusha, and S. A. Giller, "Synthesis and pharmacological properties of cyclic diacetals of sebacaldehyde," Khim.-Farmats. Zh., No. 2, 10-14 (1972).
9. G. P. Sokolov, R. O. Vitolin', and S. A. Giller, "Synthesis and pharmacological properties of the hydrochlorides and methiodides of aminomethyl derivatives of 2-[diphenyl(hydroxy)methyl]-1,3-dioxolane," Khim.-Farmats Zh., No. 12, 10-15 (1973).
10. G. P. Sokolov, S. A. Giller, A. A. Kimenis, V. E. Klusha, Ya. Ya. Ginters, and M. M. Veveris, "Dioxonium - a new curarelike agent," Khim.-Farmats. Zh., No. 2, 60-61 (1974).
11. G. P. Sokolov, A. A. Kimenis, M. M. Veveris, and S. A. Giller, "Synthesis and curarelike properties of quaternary ammonium derivatives of cyclic acetals of levulinaldehyde and levulinic acid," Khim.-Farmats. Zh., No. 3, 8-13 (1973).
12. S. A. Giller, G. P. Sokolov, A. A. Kimenis, and V. E. Klusha, "Method for the preparation of 1,2-bis(4'-pyrrolidinomethyl-1',3'-dioxolan-2'-yl)ethane," Belgian Patent No. 743137 (1970); US Patent No. 3661929 (1972); Japanest Patent No. 26787 (1972); French Patent No. 2059981 (1973); West German Patent No. 1923843 (1974).
13. S. A. Giller, G. P. Sokolov, A. A. Kimenis, and V. E. Klusha, "Method for the preparation of 1,2-bis(4'-pyrrolidinomethyl-1',3'-dioxolan-2'-yl)ethane dimethiodide," Swiss Patent No. 503049 (1971).
14. S. A. Giller, G. P. Sokolov, A. A. Kimenis, and V. E. Klusha, "Changes in natural dioxolane derivatives and their utilization for pharmaceutical preparations," British Patent No. 1244437 (1971).

XIV. Technology of the Manufacture of Organic Compounds

1. S. A. Giller, M. V. Shimanskaya, and I. I. Ioffe, "Vapor-phase catalytic oxidation of furfural to maleic anhydride," in: Problems in the Utilization of Pentosan-Containing Raw Material [in Russian], Riga (1958), pp. 263-275.
2. M. M. Gershov and S. A. Giller, "Method for the purification of technical-grade p-aminosalicylic acid," USSR Author's Certificate No. 118212; Byul. Izobr., No. 19, 33 (1959).
3. S. A. Giller, E. V. Zarin'sh, and M. M. Gershov, "Method for the preparation of p-aminosalicylic acid by carbonation of m-aminophenol," USSR Author's Certificate No. 118213; Byul. Izobr., No. 4, 13 (1959).
4. M. V. Shimanskaya and S. A. Giller, "Development of a new method for the industrial production of maleic anhydride," Khim. Prom., No. 3, 25-28 (1960).
5. M. V. Shimanskaya and S. A. Giller, "Preparation of synthetic pyruvic and malic acids from inedible raw material," in: Material from the Scientific-Technical Conference on the Intensification of Processes for the Manufacture of Nutritive Acids [in Russian], Riga (1961), pp. 113-122.

6. A. A. Avot, M. V. Shimanskaya, S. A. Giller, V. A. Slavinskaya, M. K. Sile, and I. Ya. Silis, "Pilot apparatus for the study of catalytic vapor-phase oxidation processes," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 209-215 (1967).
7. A. Ya. Karmil'chik, V. V. Stonkus, M. V. Shimanskaya, and S. A. Giller, "Industrial method for the preparation of α -methylfuran," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 747-748 (1969).
8. S. A. Giller, A. Ya. Karmil'chik, A. A. Avot, A. P. Zeibot, V. A. Kupleniek, G. A. Ēnin'sh, V. V. Stonkus, M. V. Shimanskaya, "New technology for the preparation of furan," *Gidrolizn. Lesokhim. Prom.*, No. 4, 9-11 (1970).
9. A. Ya. Karmil'chik, V. V. Stonkus, M. V. Shimanskaya, and S. A. Giller, "Preparation of α -methylfuran from still residues from furfural production," *Gidrolizn. Lesokhim. Promysh.*, No. 7, 12-14 (1970).
10. Zh. Ē. Musha, S. A. Giller, and M. V. Shimanskaya, "Dehydration of Maleic Acid. III. Periodic dehydration with an experimental industrial apparatus," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 182-190 (1970).
11. Zh. Ē. Musha, S. A. Giller, M. V. Shimanskaya, R. A. Liepinya, and Ya. P. Zile, "Desublimation of maleic anhydride from the contact gases from the oxidation of furfural," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 175-181 (1970).
12. B. O. Polishchuk, V. V. Kotetskii, E. I. Shapiro, L. A. Vol'f, and S. A. Giller, "Preparation of an antimicrobial acetate fiber for medical purposes," *Khimicheskie Volokna*, No. 4, 64-65 (1970).
13. A. A. Anderson, S. P. Yurel', M. V. Shimanskaya, and S. A. Giller, "Monitoring of the production of piperazine," in: *Gas Chromatography. A Collection of Scientific Works [in Russian]*, Moscow (1971), pp. 61-64.
14. Zh. Ē. Musha, S. A. Giller, Ya. P. Zile, and M. V. Shimanskaya, "Rectification of maleic anhydride with an experimental industrial apparatus," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 59-63 (1971).
15. Zh. Ē. Musha, S. A. Giller, M. V. Shimanskaya, and Ya. P. Zile, "Search for methods for the preservation of the colorlessness of commercial-grade maleic anhydride on prolonged storage," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 356-364 (1971).
16. S. A. Giller, K. K. Venter, V. A. Kuplenieks, G. D. Tirzit, Kh. I. Girshovich, Z. G. Fridman, and S. G. Fridlender, "Synthesis and technology of the manufacture of the maleic acid hydrazide preparations GMK-T and GMK-Na," in: *Maleic Acid Hydrazide as a Plant-Growth Regulator [in Russian]*, Nauka, Moscow (1973), pp. 343-350.
17. S. A. Giller, K. K. Venter, A. A. Lazdyn'sh, R. Yu. Kalnberga, D. O. Lolya, V. V. Tsirole, V. Ē. Ēgert, and V. K. Ulaste, "Synthesis of β -(5-nitro-2-furyl)acrolein and optimization of the processes used to prepare it," *Khim.-Farmats. Zh.*, No. 2, 29-33 (1974).
18. A. A. Avots, A. Ya. Karmil'chik, V. V. Stonkus, V. S. Aizbalt's, M. V. Shimanskaya, and S. A. Giller, "Technology for the preparation of α -methylfuran from methylfurfural," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 233-238 (1975).

XV. History and Organization of Science

1. S. A. Giller, "The life and work of [Professor and Doctor of Chemical Sciences] Paul Kalnin'," *Izv. Akad. Nauk LatvSSR*, No. 12, 155-160 (1956).
2. A. I. Kalnin'sh and S. A. Giller, "Possibility of the utilization of woodcutting waste products," in: *Status and Prospects for the Study of the Plant Resources of the USSR [in Russian]*, Izd. Akad. Nauk. SSSR, Moscow-Leningrad (1958), pp. 204-212.
3. S. A. Giller, "Advances in organic synthesis. Research of the Institute of Organic Synthesis of the Academy of Sciences of the Latvian SSR," *Izv. Akad. Nauk LatvSSR*, No. 4, 24-33 (1966).
4. S. A. Giller, "Corresponding Member of the Academy of Sciences of the Latvian SSR Mikhail Grigor'evich Voronkov," *Izv. Akad. Nauk LatvSSR*, No. 4, 138-139 (1966).
5. S. A. Giller and A. R. Val'dman, "Yan Voldemarovich Peive [on his 60th birthday]," *Izv. Akad. Nauk LatvSSR*, No. 7, 149-151 (1966).
6. S. A. Giller, "Prospects for the development of scientific research in 1971-1975 in the institutes of the division of chemical and biological sciences of the Academy of Sciences of the Latvian SSR," *Izv. Akad. Nauk LatvSSR*, No. 3, 22-31 (1968).
7. S. A. Giller, "Results of the most important scientific research in the chemical and biological sciences and their application in the national economy," *Izv. Akad. Nauk LatvSSR*, No. 3, 19-24 (1969).

8. S. A. Giller, "Bioorganic chemistry and technical progress," *Izv. Akad. Nauk LatvSSR*, No. 3, 90-98 (1970).
9. S. A. Giller, "Results of the most important scientific research in the chemical and biological sciences and their application in the national economy," *Izv. Akad. Nauk LatvSSR*, No. 3, 20-28 (1970).
10. S. A. Giller, "From the history of the establishment and development of the scientific activity of the Institute of Organic Synthesis," *Izv. Akad. Nauk LatvSSR*, No. 3, 80-87 (1971).

XVI. Other Research

1. P. Kalnins and S. Giller (Hillers), *Par α -laktonu pastavesanas iespeju (l. zinojums par kada spilgts krasaina dimera ketena strukturu)*, "LatvPSR ZA Vestis", No. 2, 171-184 (1947); "The existence of α -lactones (first communication regarding the structure of an intensely colored ketene dimer)."
2. G. Ya. Vanag, S. A. Giller, L. S. Geita, Z. D. Bleksmit, V. N. Kovalenko, and M. A. Kotovshchikova, "Study of new anticoagulants from a group of indanedione derivatives," *Farmakol. Toksikol.*, No. 19, 23-27 (1956).
3. A. F. Blyuger, S. A. Giller, and B. S. Shenigson, "Detection of anti-lambliasis activity of nitrofurans and first experience with their application for the treatment of human lambliasis invasion," *Med. Parazitol. Parazitar. Bolezni*, No. 6, 646-647 (1960).
4. É. Ya. Lukevits and S. A. Giller, "Reaction of triethylsilane with mercury salts," *Izv. Akad. Nauk LatvSSR*, No. 4, 95-98 (1961).
5. É. Ya. Lukevits and S. A. Giller, "[Organosilicon compounds of the furan series.] Syntheses in a series of furan-containing organosilicon compounds. I. Reduction of furyl-, phenyl-, and thienylmercury chlorides with triethylsilane," *Izv. Akad. Nauk LatvSSR, Ser. Khim.*, 99-102 (1961).
6. A. I. Meos, L. A. Vol'f, S. A. Giller, S. A. Inkina, and G. P. Sokolov, "Acetalation of polyvinyl alcohol fibers with maleindialdehyde," *Khimicheskie Volokna*, 19-21 (1961).
7. S. A. Giller, L. A. Vol'f, A. I. Meos, and G. P. Sokolov, "Method for waterproofing polyvinyl alcohol fibers," *USSR Author's Certificate No. 138376; Byul. Izobr.*, No. 10, 44 (1961).
8. S. A. Giller, G. P. Sokolov, and M. G. Voronkov, "Method for the preparation of alkyl- or aryl-substituted 4-methoxy-2-buten-1-ol," *USSR Author's Certificate No. 162152; Byul. Izobr.*, No. 9, 26 (1964).
9. S. A. Giller and Ya. A. Kastron, "Method for the preparation of an epoxide resin," *USSR Author's Certificate No. 167923; Byul. Izobr.*, No. 3, 38 (1965).
10. A. A. Avot, M. V. Shimanskaya, and S. A. Giller, "Some problems in the economics of the production of maleic anhydride from furfural," *Izv. Akad. Nauk LatvSSR*, No. 10, 87-91 (1965).
11. A. S. Shvarts, Ya. A. Kharit, S. A. Giller, K. K. Venter, V. V. Kotetskii, L. A. Vol'f, A. I. Meos, and D. V. Fil'bert, "Method for the preparation of insoles for footwear," *USSR Author's Certificate No. 278468; Byul. Izobr.*, No. 25, 192 (1970).
12. B. V. Kurgan, and S. A. Giller, "2-Chlorethylthiol esters of dicarboxylic acids," *Khim. Geterotsikl. Soedin.*, 12-16 (1970).
13. A. Ya. Karmil'chik, S. A. Giller, M. V. Shimanskaya, and V. V. Stonkus, "Method for the preparation of benzene," *USSR Author's Certificate No. 266757; Byul. Izobr.*, No. 32, 207 (1971).
14. B. V. Kurgan and S. A. Giller, "Opening of the trimethylene sulfide ring," *Khim. Geterotsikl. Soedin.*, 597-598 (1971).
15. A. Yu. Tsimanis, N. O. Saldabol, and S. A. Giller, "New method for the synthesis of arylglyoxylic acids," *Zh. Organ. Khim.*, 8, 2618 (1972).
16. S. A. Giller, I. N. Goncharova, Yu. A. Vaintraub, G. S. Gurevich, S. Z. Levin, B. G. Greidin, and V. K. Tsyskovskii, "Method for the preparation of pimelic acid," *USSR Author's Certificate No. 334214; Byul. Izobr.*, No. 12, 90 (1972).
17. Z. L. Zosim, L. Ya. Palienko, M. A. Solyanik, N. D. Mikhnovskaya, S. A. Giller, and K. K. Venter, "Method for the modification of cellulose," *USSR Author's Certificate No. 363770; Byul. Izobr.*, No. 4, 70 (1973).
18. Ya. Yu. Polis, S. A. Giller, and I. M. Kamyanov, "Method for the preparation of adamantyl-amino-N-glucuronide," *British Patent No. 1390479 (1975); US Patent No. 3876776 (1975)*.

Editing

1. Furacillin and Experience with Its Application [Collection of Papers] [in Russian], Riga (1953).
2. Tubazid [Collection of Papers] [in Russian], Riga (1958).
3. Resources of Pentosan-Containing Raw Material in the USSR [Collection of Papers] [in Russian], Riga (1960).
4. M. V. Shimanskaya and V. A. Slavinskaya, Analytical Determination of Furfural [in Russian], Riga (1961).
5. Furazolidone [Collection of Papers] [in Russian], Riga (1962).
6. Piperazine [Collection of Papers] [in Russian], Zinatne, Riga (1965).
7. Cyclophosphane [Collection of Papers] [in Russian], Zinatne, Riga (1965).
8. Latvijas PSR Zinatnu Akademijas Vestis. Kimijas Serija, Izv. Akad. Nauk LatvSSR, Ser. Khim. Riga (1961-1965).
9. Khim. Geterotsikl. Soedin. [All-Union Journal], Riga (1965-1975).
10. Chemistry of Heterocyclic Compounds [in Russian], Vols. 1-3, Zinatne, Riga (1967-1971); Vol. 1, Nitrogen-Containing Heterocycles (1967); Vol. 2, Oxygen-Containing Heterocycles (1970); Vol. 3, Sulfur-Containing Heterocycles (1971).
11. Order of the Worker's Red Banner of the Institute of Organic Synthesis, 1957-1969 [in Russian], Zinatne, Riga (1970), second edition (1972).
12. ThioTEFA [in Russian], Izd. Akad. Nauk LatvSSR, Riga (1961).
13. "Physiologically and optically active polymeric substances" [Proceedings of the Second All-Union Symposium on the Chemistry and Physical Chemistry of Physiologically and Optically Active Polymeric Substances] [in Russian], Zinatne, Riga (1971).
14. Furagin and Solafur [in Russian], Zinatne, Riga (1968).
15. Experimental and Clinical Pharmacotherapy [in Russian], Zinatne, Riga (1970), Issue 1, Issue 2, Issue 3 (1972); Issue 4 (1973); Issue 5, (1973).
16. Rakstu Kraj, Gustavs Vanags Dzive un Darba (The Life and Activity of Gustav Vanag), Zinatne, Riga (1969).
17. Institute of Organic Synthesis, Zinatne, Riga (1970).
18. V. Ē. Ēgert, Ya. P. Stradyn', and M. V. Shimanskaya, Methods for the Analytical Determination of Compounds of the 5-Nitrofur Series [in Russian], Zinatne, Riga (1968).
19. Index of Research of the Order of the Worker's Red Banner of the Institute of Organic Synthesis of the Academy of Sciences of the Latvian SSR [in Russian], Liesma, Riga (1974).