Etsuo Miyamichi and Shigeo Seuda : Recent Movement of Anticoagulant (Review).

Yoshio Kato : Progress of Surface Active Agents (Review).

Etuso Miyamichi and Shigeo Senda : Synthesis of Ethylenediamine Tetraacetic Acid—2 Na—Ca—Complex Salt.

We have investigated three synthetic methods of ethylenediamine tetraacetic acid (EDTA) as follows.

(1) In the solution of ethylenediamine and NaOH, NaCN and 35% formaline were added dropwise alternately during 8~10 hr. at 60°.

(2) In a solution of ethylenediamine, monochloroacetic acid and Na_2CO_3 were added and heated for 8hr at 70°.

(3) Imino diacetic acid, ethylenebromide and K_2CO_3 were heated for 10hr. at 100°.

It was found that the method (1) was the best.

EDTA-2 Na-Ca Complex salt was prepared quantitatively from aqueous solution of EDTA-2 Na and $CaCO_3$.

Takeshi Shimano, Shintaro Nomura and Hiroshi Kuroi : Examination for the Extraction Conditions of Berberin Hydrochloride from *Cortex Phellodendori* (J. P. V.)

The method for extraction of berberin hydrochloride from *Cortex Phellodendori* with various density of hydrochloric acid was detected.

As the result of many experimental tests, the best yield was obtained when 300 gr. of materials are refluxed 3 times (1500 cc, 900 cc, 800 cc) with 2% hydrochloric acid for one hr. at 90°C in boiling water-bath.

A little seasonal variation of the component in *Cortex Phellodendori* was also found.

Masuo Akagi, Kazuo Hirose, Shūichi Watanabe and Yōki Ose : Studies on the Mechanism of Antibacterial Action shown by Quinones. I. Relation between Antibacterial Properties of Quinones and their Chemical Stuctures. (1) About Arylbenzoqinones.

Relation between antibacterial property of aryl-quinone and its chemical structure was studied. Tested microbes were *Escherichia coli communis, Shigella flexneriae 2a, Shigella dysenteriae 1, Salmonela typhi* and *Staphylococcus aureus*. Thirty nine aryl-quinones belonging to aryl-substituted homologies of benzoquinone (I), 2.5-dichloro-benzoquinone (II), 2.5-dihydroxybenzoquinone (III) and 2.5-diacetoxybenzoquinone (IV) were tested.

Their antibacterlal activity is shown in Table 1, and relation between antibacterial activity of aryl-quinone and its chemical structure is shown in Table 2.

Masuo Akagi, Kazuo Hirose, Yoki Ose and Junzi Amano : Studies on the mechanism of Antibacterial Action shown by Quinones. II. Effects of some Compounds on the Antibacterial Properties of Quinones. 1. About the Effects of Surface Active Agents.

(1) Antibacterial action shown by some nonionic surface active agents (Emulgen 106, Emulgen 210, Emulgen 408, Emasol 110, Emasol 1130) *in vitro* against *Staphylococcus aureus* and *Bacillus subtils* were tested. While these agents had no antibacterial action against *St. aureus*, Emulgen 106 showed the action in the concentration of 2×10^{-4} and others had weak action against *B. Subtilis*, practically devoid of antibacterial action.

(2) Synergistic action of some nonionic surface active agents against *St. aureus* and *B. subtilis* shown by benzoquinone, toluquinone and 2-(p-tolylmercapto)-5-laurylmercapto-benzoquinone were tested *in vitro*, and some synergistic action was found as shown table 1.

Yūzō Nagase, Ushiho Matsumoto and Yukio Satake : On the Nitration of Phenolsulfonphthalein. Synthesis of 3,3′-Dinitrophenylsulfonphthalein.

(1) Nitration of phenolsulfonphthalein with mixed acid was studied under several conditions to synthesize 3,3′-dinitrophenolsulfonphthalein (I). 3,3′, 5,5′-Tetranitrophenolsulfonphthalein (II), mixture of (I), (II) and starting material or (II) and starting material was obtained as nitration products ; synthesis of (I) in pure state by the direct nitration was impossible under our conditions.

(2) 3,3-Dinitrophenolsulfonphthalein (I) was synthesized by nitration of phenolsulfonphthalein-diacetate in glacial acetic acid solution with mixed acid.

(3) pH-intervals of (I) and (II) as indicator were determined in aqueous buffer solutions respectively.

(I) : (yellow) 2.6——3.9 (violet red) and (violet red) 11.5——approx. 14 (yellow).

(II) : (violet red) 9.5——11.0 (yellow).

Yūzō Nagase and Hiroshi Kawai : Adsorption of pH Indicators to Ion Exchange Resins and Application to pH Determination.

Amberlite IRA-410 and -XE-98——strong base type anion exchange resins——easily adsorbed, and rarely eluted pH indicators. The resins having adsorbed them, took shorter time (approximately one minute) for color change, which was acute. Most of them, therefore, could be utilized for pH determination, while in case of sulfonphthalein- and stilben-derivatives, pH-inter-

vals were broader and more narrow in each resin than in aqueous solutions, respectively.

Amberlite IRC-50——weak acid type cation exchange resin—— was difficult to adsorb and apt to elute pH-indicators in its H-form, with scarcely adsorbing them in its Na-form. Its color change took longer time (approximately five minutes), and the application to pH determination, accordingly is limited to a great extent.

Matatsugu Yokoyama and Senkichi Matsubara : Microanalysis of Dyestuffs by Application of Paper Chromatography.

Chapter I

We applied paper chromatography for microanalysis of dyestuffs. In this chapter, as the primary study, we studied experimental methods, apparatus, developments and Rf-values etc. Especially we studied the method of expression of Rf-values as follows. Rf-values in paper chromatography experiments are quite varied at some of the same experiments. Then the method of the expression of Rf-values in the past can not indicate the results of the experiment exactly. For improving this inconvenient point, we showed the standard deviation, which is being used in the territory of statistics, with Rf-values.

Chapter II

The dyestuffs have radicals as follows : -OH, $-NH_2$, Halogens, $-CH_3$, $-SO_3Na$, -COONa. Among these radicals, the radical which has important effects upon Rf-values, was sulphonic radical.

Kōichi Nakazawa and Shin Matsuura : Synthesis of Phloroglucinol and Methylphloroglucinol.

Phloroglucinol. Picrylchloride is reduced with Sn+HCl, some parts of $SnCl_2$ formed thereby are separated as the double salt with NH_4Cl and the solution is filtered after neutralizing 60% of free and combined HCl with NaOH solution. The filtrate is boiled in a coal-gas strom, precipitated soluble Sn as hydroxide with K_2CO_3, acidified slightly with HCl, evaporated to small volume in vacuum and extracted with ethyl acetate. The extract is mixed with C_6H_6, dehydrated by distilling most parts of solvents and added C_6H_6 to crystallize water-free phloroglucinol.

Methylphloroglucinol. Trinitrotoluene is reduced with Sn+HCl, precipitated Sn as hydroxide by neutralizing the solution with NH_3, then K_2CO_3 and filtered. The filtrate is made slightly acid with HCl, and treated as above to obtain water-free methylphloroglucinol.

Kōichi Nakazawa and Takachiyo Okuda : Molecular Compounds of Medicinal Drugs. 1. Molecular Compounds of Phenosulfazole Series.

Thermal analysis by moist-melting method was carried out on 5 kinds of two components-system composed of phenosulfazole series, such as *P*-hydroxybenzene sulfonamide, 2-(*P*-hydroxybenzene sulfonamido)-thiazole, 2-(*P*-hydroxybenzene sulfonamido)-pyridine, 2-(*P*-hydroxybenzene sulfonamido)-pyrimidine, and *P*-(4-hydroxybenzene sulfonamido)-phenethole, as one component, and barbital, as the other systems,

It was found that only two 2-(*P*-hydroxybenzenesulfonamido)-thiazole——barbital, and *P*-(4-hydroxybengenesulfonamido)-phenethole——barbital formed molecular compounds.

Kichitaro Takatori and Yasuo Yamada : Synthesis of 3, 4-Dimethylbenzoic Acid from Camphor or Eenchone.

(cf : J. Pharm. Soc. Japan 74, 1120 (1954).)

(1) An oily substance, Camphren, is obtained by the steam distillation of 1 part of camphor with 4 parts of conc. sulfuric acid; oxidation of Camphren with sodium hypochlorite to 3,4-dimethylbenzoic acid. Yield of this acid was 20—25 % of the weight of camphor.

(2) Instead of camphor, fenchone gave better result. In this case, yield of 3, 4-dimethylbenzoic acid was 40—42 % of the weight of fenchone.

(3) In same reaction, borneol did not give 3, 4-dimethylbenzoic acid.

Takeo Ohno : Syntheses of Nitrophenol-type Compounds.

The following substances were synthesized as the materials for studing the mereuric compounds.

4-nitroresorcinol, 2-nitroresorcinol, 2,4-dinitroresorcinol, 2-nitrohydroquinone, 2,6-dinitrohydroquinone, 3-nitrocatechol, 4-nitrocatechol, 3, 5-dinitrocatechol, 2-nitronaphthol-1, 4-nitronaphthol-1, 2,4-dinitronaphthol-1, 1-nitronaphthol-2, 5-nitro-8-hydroxyquinoline, 5,7-dinitro-8-hydroxyquinoline, 4,5-dinitrofluorescein and 3′,3′′-dinitrophenolphthalein.

Kazuo Hirose, Ziro Kitamura and Takeki Aoki : Syntheses of Aryl Thiolsalicylates.

Five aryl thiolsalicylates, three of them are new Compounds, can be obtained as follows. (1) Salicylic acid and mercaptan are heated at 120°～130° in the presence of $POCl_3$. (2) Phenyl

salicylate and sodium mercaptide are heated at 170°～190° in the absence of solvent. (3) Salicyloyl chloride and mercaptan are reacted in the presence of pyridin. The first method mas simplest and gave the best yield. The properties of these compounds are shown in Table I.

Ryōichi Hayashi and Akimasa Kizawa : Studies on the Relationships between physical Constitutions and Pulse Numbers.

Classifying the physical constitutions of the students of our college into the thin, the insufficiently grown. the common, the overgrown and the corpulent, etc., we have studied the relationships between the physical constitutions and pulse numbers. From this research, we infer the following:

All students of corpulent constitution have a stable circulating system of blood. On the other hand, some students of thin constitution have a stable, but others an unstable circulating system of blood.

Jinkichi Yoshida, Hideo Miyata and Tutomu Nobuta : A factual Business Investigation of the Drug Stores in Gifu City.
——mainly from the Standpoint of their Location.

The location of the drug stores is the most impotant thing, as all other business. The selection of the proper location is one of the most vital elements in the success of the drug business. Because other factors that make for success may all be offset by a location that make it impossible to secure the ne cessary volume of sale. So, the better the site is the more occupied by drug stores. Thus we are able to know where have been better, and where will be more proper, by seeing the figure of the drug store distributbution. By this reason, we drawed the drug store distribution map of Gifu City.

The next thing we must consider on the location, is that business policies of pharmacists ought to be adapted to their given lvcation. In other words, the business states of the drug stoes ought to vary according to their location. So we investigated the items which drug stores handle, their customers, and their advertisement, in relation to their location.

Jinkichi Yoshida : An Idea of Drug Economics.

Drug economics was added as a subject of the pharmaceutical college under the new school regime in 1950, but this subject has been seldom discussed on its whole composition or its con-

tents, perhaps owing to its little importance in the college course. So I made up my mind to open my idea on drug economics and to wait for an opportunity to have many criticisms on my idea. I am very glad if all be done as my expectation, and the inquiry into this subject be more developed.

Drug economics is a science to study the drug industry. The drug industry contains two parts, that is, producion and distribution. Drug production is divided into as follows:

drug production
- original production ····· crude drug ····· { picking, cultivating }
- manufacturing (working up) ····· { chemical manufacturing, biological 〃, physical 〃 }

The drng distribution industry (drug commerce) contains two parts, that is, wholesaling and retailing. So all these parts must be study as the subject of drug economics. Drug ecnomics also have three parts as general economics, that is, history, theory, and policy. So we must study drug economics from historical, theoritical and political point of view. Moreover we must approach the subject of drug economics from political economy and managerial economics.

Sadanori Sawanobori : Sociology of Law——on G. Gurvitch's Sociology.

In "Sociology of Law" (1942), Georges Gurvitch iutroduced the system of his sociology of law, which was derived from Duguit's collective pluralism, and he maintained that law was a extremely specialized process and means of social control and that law was omnipresent not only in the state but also in every social group. He regards sociology of law as a branch of sociology of human spirit (noetic mind), and society as the whole, in which the levels — or strata — of social reality, i. e., the geographic and demographic basis, organizations, cultural patterns(standardized images of collective conducts), unorganized collective coducts, social symbols (the inadequate sensitve expressions of spiritual meanings, taking the place between appearances and things in themselves), innovating and unforeseeable social behaviours, values and collective ideas, and the collective mind itself, are indissolubly connected and interpenetrating one anoter. And in his general classification of society, he classifies sociology in the three branches, i. e., microsociology, differential sociology, and macrosociology. (1) Microsociology has the task of studying forms of socialities. (2) Differential sociology has the task of studying particular groupings. (3) Macrosociology has the task of studying inclusive societies. Accordingly he subdivides the sociology of law into the three purts, i. e., systematic sociology of law, differential sociology of law, and genetic sociolgy of law. In our looking for the right way to sociology of law, I think, we cannot overlook G. Gurvitch's sociology of law.

Takeshi Shimano, Mizuo Mizuno and Suzuko Izeki : Preliminary Report on the Flavonoides of *Gramineae*.

The flavonoidal constituents of *Gramineae sp*, in the Gifu prefecture (27 gen. 38 sp.) were xamined by the paper partition chromatography and paper electrophoresis. Remarkable spots are Rf 0.4 — 0.5, 0.5 — 0.6 on the paper chromabogram and Vf 20—30, 30 — 40 on that by the electrophoresis. It is shown that luteolin-type flavonoide may be present. Remarkable flavonoidal spots were specialy obtained in the following plants : *Avena fatua, Arthraxon hispidus, Cynodon dactylon, Digitaria citiaris, Panicum crusgalli, Panicum bisulcatum, Lophtherum gracili, Miscanthus tinetertus,* and *Triticum aesticum,* as shown in the Tabl. I, II and Fig. I, II.

Takeshi Shimano, and Mizuo Mizuno : Preliminary Examination on the Contents of Trachelospermum asiaticum Nakai var. intermedium Nakai.

From the precipitate by lead subacetate of methanol-extract of the stem of *Trachelospermum asiaticum Nakai var. intermedium Nakai,* were obtained a light yellowish, amorphous substance (only in vaccum), mp. 77—79° which is supposed to be the principal constituent of this plant. It gave various reactions of glucosides, especially remarkable fluorescence in the ultra-violet light. The princpal contents were also examined by the capillary analysis. In that β-zone blue fluorescence in the ultra-violet light and the yellow coloring by the Al $(OH)_3$ solution was remarkably clear. This may provably be glucosidal substance.
