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1. Study on the Physical Indices.
   Takeo KAMAKURA
   (Dept. Hygiene—H. Kita)

   Quetelet, Kaup, Pfünderl and Rohrer indices were calculated for thirteen thousands of males
   and females aged from 6 to 20.
   The shift of indices for the aging aged was observed.
   The indices which increased with age were Quetelet and Kaup, and Pfünderl and Rohrer index showed little variations.
   The distribution as the normality was discussed for indices at each age for the purpose of
   statistical analysis, and every index was not considered as the normal distribution through ages,
   especially from 10 to 12 years old.
   The distribution was considered as the log normal, and logarithmic transformation was
   needed for statistical analysis.

2. Clinical Study on Diagnostic
   Value of Phonocardiography
   Tsukio KAWAFUNE
   (1st Dept. Internal Medicine—K. Yama)

   Recording the normal heart sounds, organic murmurs of valvular disease and functional
   murmurs of hyperthyroidism, hyperension and anemia by piezo scope, the phonocardiogram was
   clinically studied in parallel with considerations on findings obtained from auscultation and other
   examinations in the heart diseases
   The results were as follow.
   1) According to the records, 1st heart sound was most strong on apex area and showed a big
   amplitude of vibration and a high pitch in proportion to cardiac output volume and pulse rate.

   Whe cardiac output volume alone become large as in case of hypertension, the duration of
   1st heart sound was extended. 2nd heart sound was stronger at basis area than apex area
   and increased on amplitude of vibration when heart rate was accentuated, especially remarkable
   in aortic 2nd sound. The relation was significant, too, between minimal blood pressure and the intensity ratio of aortic 2nd sound in
   case of hypertension.
   2) 3rd heart sound was recorded on apex area, especially remarkable in anemia. Almost
   diastolic murmurs of mitral stenosis began at 3rd sound. There might be some relations be-
   tween the existence of 3rd sound and the width of mitral valve ring.
   3) Regurgitation murmurs such as apical systolic and basal diastolic murmurs were either of
   plate type or of decrescendo type. Most of ejection murmurs, both organic and functional,
   such as basal systolic murmurs were considered as being of crescendo-decrescendo type. How-
   ever, there was no significant relation between the severity of valvular disease and the intensity
   of murmurs. On the other hand, diastolic murmurs of mitral stenosis were of de crescendo-
   crescendo type.
   4) Functional murmurs showed the strongest intensity at 2nd and 3rd intercostal left sternal
   border in many cases. There was significant relation between the intensity ratio of pulmonal
   systolic murmurs in hyperthyroidism and the basal metabolic ratio. They were weaker than
   organic murmurs and their duration was less than 2/3 systole.

   This characteristic sensitivity of the apparatus of phonocardiogram as mentioned above
   are taken into consideration, it will be easily understood that the records of phonocardiogram
   are of significance as one of the simple methods applied for the clinical examination of heart
   disease.

3. On the New Reflex in Young
   Infants, Pérez Reflex and
   Some Others
   Mizue KUROMIYA, Tamiko IWAI and
   Ryuji SHIMADA
   (Dept. Obstetrics—K. Ohta)

   The authors studied on the new reflex in young infants, Pérez reflex and some others in 305 in-
   fant, but frequency of various reflex are not similar with those of Pérez and Vollmer.

   Frequency of various reflex is in the following order; flexed arms, flexed legs, elevated
   head, cry and anal dilatation.

   Infants showed a positive reflex during the following times; anal dilatation—1 months, cry
   —3 months, elevation of the head and lordosis of the spinal column—4 months and flexion
   arms and legs—5 months.

   Moro's reflex showed a positive during the first month of life of infants and almost of them
   are premature.
Babinski's reflex showed the highest percent in the first three months of life of infants but it become weaker gradually with elapsing times.

Pérez and Moro's reflex may be regarded as an expression of immaturity of the central nervous system in young infants.


Mizue KUROMIYA
(Dept. Pediatrics—K. Ohta)

The number of the intestinal flora, especially Bacillus bifidus and Escherichia coli, in 1 mg of feces of dyspeptic infants was investigated. Negishi's special culture medium in anaerobic condition was used for isolation of the former and Endo's medium for isolation of the latter. The results were as follows.

1) The average number of B. bifidus was log 5.0236 in breast-fed infants, log 4.2350 in mixed-fed infants and log 4.1488 in bottle-fed infants.

In comparison with the normal infant, the number of B. bifidus in breast-fed infants was higher in 7 cases, similar in 12 cases and lower in 21 cases; the numbers in mixed-fed infants was higher in 2 cases, similar in 18 cases and lower in 19 cases; the number in bottle-fed infants was higher in 5 cases, similar in 19 cases and lower in 17 cases.

The average number of E. coli was log 4.3483 in breast-fed infants, log 5.4584 in mixed-fed infants and log 5.5177 in bottle-fed infants.

In comparison with the normal infant, the number of E. coli in breast-fed infants was higher in 17 cases, similar in 29 cases and lower in 3 cases; the number in mixed-fed infants was higher in 22 cases, similar in 17 cases and lower in no case; the number in bottle-fed infants was higher in 28 cases, similar in 11 cases and lower in 2 cases.

These results revealed that B. bifidus in dyspeptic infants definitely decreased and E. coli increased in number without regard to the type of feeding.

2) Cinderlike substances were administrated orally to 19 healthy infants. The variation of them was as follow.

In 8 infants administrated carrot powder, B. bifidus increased in number in all cases (100%), and E. coli showed no change in 1 case (11%) and decrease in number in 8 cases (89%).

In 6 infants administrated banana powder, B. bifidus increased in 2 cases (33%) and decreased in number in 4 cases (67%), and E. coli increased in 3 cases (50%) and decreased in number in 3 cases (50%).

3) The comparative study of various cinderlike substances in vitro disclosed that carrot powder was the most effective on the proliferation of a few strain of B. bifidus tested.

5. Serological Investigation on the Feeding Habit, Host Preference, and Blood Meal of Mosquitoes in Tokyo District.

Seizichi TOSHIOKA
(Laboratory of Medical Zoology, School of Medical Technology, Tokyo Bunka Women's College)

1. Five thousand and four mosquito specimens consisting of five genera and twelve species were collected in resting stations in Tokyo area to carry out the study on the feeding habit, host preference, and activity of engorged mosquitoes from serological standpoint. Culex pipiens is the most dominant species in the collection, and other species decrease in number as following: C. tritaeniorynchus, Anopheles sinensis, Aedes vexans, Armigeres subalbatus, and Aedes togoi. Very few specimens of C. bitamiorhynchus, A. japonicus, A. albopictus, C. mimeticus, and Mansonia ochracea were collected.

2. The result of serological examination of these mosquitoes led to the following assumption in regard to their feeding habits and host preferences.

a. C. pipiens showed intense host preference to chicken, while M. ochracea, C. mimeticus and C. vorax seem to be bird feeding (including chicken) species.

b. An. sinensis, C. tritaeniorynchus, A. vexans, Ar. subalbatus, C. bitamiorhynchus, A. japonicus, and A. nipponicus showed intense host preferences to large domestic animals like horse and cattle.

c. A. togoi showed host preference to human being rather than to domestic animals.

d. A. albopictus showed animal preference extensivity.

e. All but bird feeding mosquitoes—M. ochracea, C. mimeticus, and C. vorax—showed feeding habit on various types of warmblooded animals, and they may belong to the species
with extensive animal preference.

f. C. ayasii seemed not to feed on vertebrate animals.

3. It was confirmed serologically that engorged mosquitoes rested inside of barns or human dwellings had not necessarily fed on domestic animals or human beings presented at their resting places. These phenomena were observed in the every collecting station, that is, the examination showed 63% of avian blood meal from the mosquitoes collected in human dwellings, and the percentages of heterogenous blood meal among the mosquitoes collected in barns ranged from 13 to 2%. This fact may bring forward an important problem both in the field of ecological and epidemiological studies of mosquitoes.

4. Mosquitoes may be divided into two groups by their feeding habits—obligatory bird feeding—and more extensive animal feeding groups. Depending on the kinds of blood sources available at their resting stations, mosquitoes which belong to the latter group seem to be further divided into the following three types: Types which show intense preferences a) to horse and cattle, b) to human being, and c) to various animals.


Etsuji YOSHIMITSU
(2nd Dept. Pathology—K. Muto)

Through histological study on the subepithelial basement membrane of the maxillary sinuses of human beings ranging in age from fetus to 70 years, the following results were obtained:

A. Physiological development of the basement membrane:
1. The subepithelial basement membrane of the maxillary sinus could be recognized as a primitive membranous structure as early as at the end of the 5th fetal month.
2. Secondary hyalinosis was found occurring in a form of a membrane in the loose connective tissue just beneath the above described basement membrane in 7th postnatal year. Thus, the typical structure of two-layered basement membrane was completed. The fact that the hyaline membrane formation occurs later in the postnatal life in the wall of the maxillary sinuses than in the other parts of the respiratory passage, i.e. nasal cavity, trachea and bronchi, appears to be related with the presence of less aeration on its surface.

B. Pathological changes of the basement membrane:
1. Small, temporary penetrations of the hyaline membrane due to emigration of wandering cells.
2. Dehyalinosis and fibrinoid degeneration of the hyaline membrane due to acute inflammation.
3. Dehyalinosis followed by sparseness of the basement membrane due to new formation of lymphatic follicles in the subepithelial layer.
4. Excessive or nodular hyalinosis of the basement membrane, diffuse sclerotic changes of the hyaline membrane, elastic impregnation in the primitive basement membrane itself or in connective tissue under the hyaline membrane, which may be considered as sequelae to chronic inflammations.
5. The basement membrane observed under the metaplastic squamous epithelium showed no hyalinisation at all.

7. Clinical and Experimental Studies on Serum Electrolytes before and after Operation.

Osamu ANDO
(2nd Dept. Surgery—E. Hamaguchi)
(Dept. Surgery, Kanto Chuo Byoin)

The serum electrolytes were observed before and after operation of the abdomen and thorax in 71 cases. The fluctuation in water balance, Na, K and Cl were assayed.

In acute illnesses where it was possible to start oral feeding in 1–2 days after operation, serum electrolytes were not influenced by whether or not influsions were given.

In chronic illnesses, in minor operations where oral feeding could be started early postoperatively, it did not differ with that of acute illnesses, but if the insult was a major one, marked influence on the electrolytes was observed.

In operations of the intestinal tract where suction of gastric juice or extrarenal fluid loss was of large quantities, great care should be taken in the electrolyte balance. It is preferred that the insensible loss was determined and the water balance was kept at a relatively negative balance.

Hiroshi KOSHIDA
(1st Dept. Internal Medicine—K. Yanagi)

Studies on the effect of vitamin B group in neutralizing the toxicity of nicotine were made since long ago, and there are many theories such as vitamin B1 theory, vitamin B2 theory, vitamin B3 theory or the combination theory. In regard to the mechanism of action there has been also no definite recognized opinion. The author studied the antinicotinic effect of vitamin B group against blood pressure changes due to smoking in human being and the lethal dose of nicotine in mice using a complex vitamin preparation called “Test Drug N” (one tablet containing 0.5 mg of vitamin B1, 1.0 mg of vitamin B2 and 0.25 mg of vitamin B3) and obtained significant results. Next the individual antinicotinic effect of vitamin B1, vitamin B2 and vitamin B3 was studied by determining the blood level of nicotinic acid in the urine. It was found that vitamin B3 showed the most marked antinicotinic action and it was confirmed that the mechanism of this action was due to the nicotine being oxidized in the body and changed to nicotinic acid.

In 40 normal adults the effect on the blood pressure of smoking was studied and it was confirmed that the “Test Drug N” inhibited the blood pressure changes. Furthermore, it was confirmed that the “Test Drug N” increases the lethal dose of nicotine in mice.

Vitamin B1 hardly participates in the in vitro oxidizing action but vitamin B2 showed a slight in vitro oxidizing action and vitamin B3 showed the most marked action. Moreover, by combining vitamin B2 and B3 the antinicotinic action was still more marked than when used alone. Furthermore, a small amount of nicotine was oxidized also by the vitamin B group already present in the body and excretion is increased in the form of nicotinic acid.

9. Inhibition of Somatic Agglutination by the Fimbrial Antigen.

Etsuo MASUDA
(Dept. Microbiology—F. Shimizu)

Recently it has been shown that some species of Enterobacteriaceae, such as E. coli, Salmonella, and Shigella, might undergo a reversible variation between the fimbriate phase and the non-fimbriate phase under different conditions of cultivation. When 3 strains of E. coli were examined, the fimbriate phase became dominant after serial aerobic cultivation in tubes of broth. In the agglutination tests with these fimbriate strains, it was obviously shown that these fimbriate strains came to possess a newly acquired component in addition to the same ones as demonstrated in non-fimbriate strains.

When a suspension of such a fimbriate strain was mixed with the antisera which was prepared from a rabbit immunized with the homologous strain in living state, a particular type of agglutination was observed within two hours, which has some resemblance to the flagellar agglutination, but could be differentiated microscopically from the latter. By the following antigen analysis experiments, it was demonstrated that the fimbrial antigens might be classified into to three major groups.

In the course of the agglutination tests using the fimbriate strains, it was noticed by the author that the corresponding somatic agglutination usually became obscure. Then, an attempt was made to clarify the inagglutinability of somatic agglutination.

In cross-agglutination tests using the three types of pure serum (flagellar antisera, somatic antisera and fimbriate antisera) and the representative antigens (non-fimbriate native bacilli, flagellar antigen; heated fimbriate bacilli, somatic antigen; acid-treated fimbriate bacilli, fimbrial antigen), flagellar and fimbrial agglutination were not misjudged due to the effect of heterologous antibodies. But in the same experiments on the estimation of somatic agglutination, the presence of the fimbrial antibodies introduced the O-inagglutinability of the fimbriate strains, while the presence of the flagellar antibodies did not.

It was summarized from the results described above that the fimbriate strains may introduce the O-inagglutinability owing to the presence of the fimbrial antigens, and in the performance of the somatic agglutination the consideration of the presence or absence of the fimbrial antigen is always necessary.


Toyohiko HAYASHI
(Dept. Public Health—R. Kano)

Tokyo is one of the famous air-polluted cities in Japan. At the laboratory of Tokyo Medical and Dental University, near the business center of Tokyo, the outdoor air is introduced to the
dust sampling apparatus.

On the plates of electrostatic precipitator, samples are taken on the meshes for electromicroscopic observation. From the figures showed in photomicrotapes, the air-borne particles are thought to consist of droplets.

The sizes of these droplets are estimated to be 1.0–0.01 μ orders. From the electromicroscopic configurations, almost of the air-borne particles seem to be composed of hydrocarbons arisen from the combustions in urban environment of Tokyo.

From the properties of samples, that is, their sizes and number, the air-borne particles are considered to reach easily to alveole of the inhabitants in this area.

Considering the circumstances of the sampling spot, these aerosols may be due to the exhaust gas of automobile driving about the street near the laboratory.


Sabra TOYODA

(Dept. Psychiatry—T. Shimazaki)

The double thought ("Doppeldenkten") of schizophrenics in the experiences that the patient's thought (the first section) is immediately heard by himself as voices or is immediately transformed into a series of words (the second section). These experiences, in one hand, have been discussed on their acoustic duplication (e.g., "Gedankenlautwerden", "écho de la pensée" etc.) and, in other hand, on their visual ("Gedankensichtbarwerden") or verbomotor-sensory duplication (for a typical example; Ségalas's "hallucination psychomotrice verbale"). Any of these experiences are experienced as "receptive" for the patients.

According to the author's study, however, there were other types of duplication of the schizophrenic's thought, being divided into the following hallucinatory experiences: 1. Acoustically, when a patient "thinks", he feels, immediately as if "he speaks himself within his brain". 2. Visually, he feels immediately as if "the letters come on". In the attitude of the patients toward the second section of cases of these verbomotor-sensory duplication, there is preserved considerably the sense of activity.

On the so-called "Gedankenlautwerden", it has been thought that only an autochtonous thought, usually lesser ego-attenuated (weniger ichthaft), uses to be duplicated. It was revealed, however, that these motor duplications could happen even of the active thought. Therefore, the author thought that there were a longitudinal and a transversal relationship between the condition of the illness or the grade of the personality-dissolution and the thought of the patient, as well as between these and the "exteriorisation" regarding the hallucinatory duplicated part (second section). The motor duplication pointed by the author seemed to be found only in the patients of fresh cases with personality-dissolution scarcely observable.

The author summarized these experiences formally relevant to the "duplication of the schizophrenics thought" and made comparative study of these experiences phenomenologically. It seemed pretty characteristic to any of them that they were all naive immediate ("unmittelbar") "anschaulich" two-sectioned in structure and specific for schizophrenics after all. Discussing the double thought of schizophrenics in a broader sense, a plural mechanism of their development was detected notwithstanding of their formal uniformity, discussion being raised to each mechanism separately.

12. The Amount of Total and Conjugated Acid in Blood and Urine of Children.

Shin ASANO

(Dept. Pediatrics—K. Ohta)

The amount of total and conjugated glucuronic acid in blood and urine of normal children and those in various disease were determined by Fishman's separatory quantitative determination method, obtaining the following results.

1. Each average value of total and conjugated glucuronic acid in blood of 77 normal children was respectively 5.42 mg/dl and 3.70 mg/dl.

They showed no definite difference according to age.

2. Each average value of them in 24-hour urine was respectively 13.3 mg and 8.8 mg in 5 newborns, 57.7 mg and 40.5 mg in 12 infants, 98.1 mg and 67.5 mg in 6 infants in weaning stage, 132.2 mg and 91.6 mg in 22 young children, 249.2 mg and 163.2 mg in 20 school-children, and 333.5 mg and 238.4 mg in 7 adults.

They showed definite increase according to age.

3. Each average value of them in blood cells of 6 normal children was respectively 7.01 mg/dl and 5.44 mg/dl. In blood plasma it was respectively 2.78 mg/dl and 1.34 mg/dl.

When sodium glucuronate was administered intravenously to 4 normal children, the amount of total glucuronic acid in blood reached to the maximum value after 30 minutes and then it
returned to the normal value after 4 or 5 hours. In urine it reached to the maximum value after 1 hour and then it returned to the normal value after 5 or 6 hours. The amount of conjugated glucuronic acid showed no fluctuation at any time in both blood and urine.

5. When glucuronolacton was administered orally to 4 normal children, the amount of total glucuronic acid in blood reached to the maximum value after 2 hours and then it returned to the normal value after 5 or 6 hours, and in urine it reached to the maximum value after 1 or 2 hours and returned to the normal value after 5 or 6 hours. The amount of conjugated glucuronic acid showed no fluctuation at any time in both blood and urine.

6. When PAS was administered orally to 4 normal children, the amount of total and conjugated glucuronic acid in blood showed no considerable fluctuation, but in urine they reached to the maximum value after 3 or 4 hours and then they gradually decreased.

7. In 10 cases of cyclic vomiting, the average value of total and conjugated glucuronic acid in blood showed no considerable fluctuation, but in urine they showed a tendency of increase at the acme of the disease and returned to the normal value in the convalescent stage.

8. In 14 cases of acute febrile diseases, both showed definite increase at the acme of the diseases and returned to the normal value in the convalescent stage in both blood and urine.

9. In 12 cases of acute glomerulonephritis, both showed no considerable fluctuation in both blood and urine.

10. In 6 cases of epidemic hepatitis, both showed no considerable fluctuation in blood, but both showed a tendency of decrease at the acme of the disease and returned to the normal value in the convalescent stage in urine.

11. In 6 cases of various diseases with anemia, both decreased definitely in blood and showed a tendency of decrease in urine, and returned to the normal value with the recovery from anemia.

12. In 6 cases of progressive muscle atrophy, they showed a tendency of decrease in blood, and decreased definitely in urine.

13. Studies on Nitrogen Metabolism in Infants.

*Tamiko IWAI*  
(Dept. Pediatrics—K. Ohta)

1. Nitrogen Metabolism in Mature and Premature Infants.

The N metabolism was studied in 53 mature (13 newborn and 40 infants) and 16 premature infants. The results were as follows.

1) N metabolism of each newborn infant was studied for the first 13 days of life.

N intake (gm/kg) progressively increased from the 1st to 8th day and N excretion (gm/kg) progressively increased from the 1st to 6th day after birth.

N retention (% of intake) was positive and progressively increased in all but two till the 8th day when the average became 62.3% and thereafter it showed some decrease till the 15th day, when the average was 51.7%, the two cases showed a negative N balance on the 1st postnatal day but there after it took a normal course.

2) N intake in 40 infants (from 15 days to 8 months of age) was 3.5 gm/kg as protein without regard to age. N excretion showed some increase with age. N retention decreased with age, namely the average was 31.8% during the 1st month, 49.4% during the 1st-2nd month, 42.4% during the 3rd-5th month and 39.3% during the 6th-8th month.

3) N metabolism of each premature infant was studied for the first day of life.

N intake regularly increased day by day while N excretion and retention varied in individual cases.

There was a case with a negative balance during the first 5th days after birth. The N retention in premature infants weighting at birth over and under 1700 gram increased till the 40th day and 70th day, respectively.

II. Nitrogen Metabolism of Normal Infants according Kind of Milk.

N metabolism following administration of human milk, cow milk, Humana-Milch and G-drymilk in 29 normal infants was studied, and the following results were obtained.

1) In the human milk group, the intake, excretion and balance of N were lower than those of the other group. However, the N retention was the highest (average 59.2%).

2) In the other three groups, N intake was almost the same but the excretion was slightly higher in the G-drymilk group. Average N retention of each group was 48.8% in the cow milk group, 46.6% in the Humana-Milch group and 42.4% in the G-drymilk group.

III. Effect of Some Growth-Promoting Substance on Nitrogen Metabolism of Infants.

Lysine, threonine, glutamylcholine were administered for 2-4 weeks to 66 infants, whose development and appetite were disturbed, and
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the effect on growth and N metabolism was studied. Results were as follows.
(1) In a group of 34 infants administered with 225-300 mg of 1-lysine daily, there were 19 infants with increase of body weight and/or increase of appetite.

And 4 in 7 cases, whose N metabolism was studied, showed increase of N retention.

(2) In a group of 20 infants administered with 0.1 gm/kg of d-l threonine daily, there were 13 infants with increase of body weight and/or increase of appetite.

And 3 in 5 cases, whose N metabolism was studied, showed an increase of N retention.

(3) In a group of 12 infants administered with 4 mg of glutamylcholine daily, there were 7 infants with increase of body weight and/or increase of appetite. And 2 in 8 cases, whose N metabolism was studied, showed increase of N retention.

14. Study on Dental Caries in Children.
Kazunari SETO
(Dept. Pediatrics—K. Ohta)

Because of the IInd World War, a bad effect has been exerted greatly upon the standard of physique of school children and according to an investigation into the transition of the annual standard of physique of children in a certain elementary school in Shinagawa Ward of Tokyo, the standard of physique was the lowest in 1946 and 1947 which were the years immediately after the war, but a re-improvement has been seen in and after 1948 with a tendency in 1952 toward superiority over the prewar levels. Also, comparison of the standard of physique between school children in Tokyo and those in local areas revealed that the physique of school children in Annaka Village, Ibaraki Prefecture who were considered to have been favored with the comparatively abundant self-sufficient living from war-time to postwar years was badly affected by the war, but the degree was slighter than in school children of Tokyo. However, in school children of Asahi and Kawashima Villages of Nagano Prefecture which seemed to be entirely deficient in the self-supporting capability, the bad effect was more intense than in those of Tokyo.

On the other hand, comparison of the transition of the standard of physique and the incidence of dental caries showed that in school children of Tokyo the incidence of dental caries was the least at one or two years later than the period when the standard of physique was the worst in postwar years but there has been re-increase in the incidence of dental caries thereafter. This result appeared to indicate that the amount of intake of the diet, particularly cane sugar had a great bearing upon the incidence of dental caries rather than to say that the caries increased or decreased depending upon the condition of systemic nutritional growth. Also, in school children in rural districts such as Annaka Village and those in Nagano, the incidence of dental caries was generally less frequent than in Tokyo, but in the years 1948 and 1949 no striking difference was observed especially in elder school children, giving rise to a presumption that although school children in urban areas may take more cane sugar than those in rural ones, sanitation idea on the cleanings of the dental cavity will be more spread among the former.

Furthermore, comparison of the number of dental caries and changes in the saliva and blood showed that even if the number of dental caries was numerous, no marked variations were noted in pH, viscosity and calcium content in the saliva, content of calcium, phosphorus, alkaliphosphatase and protein as well as specific gravity and viscosity in the serum, blood sedimentation rate, number of erythrocytes and leukocytes, hemoglobin content and blood picture. The results seemed to indicate that in healthy school children in whom the dental caries does not interfere with their daily life it does not exert a bad effect rapidly upon the various components of the blood or reversely the multiple occurrence of dental caries based on the changes of various humoral components is, as a rule, hardly recognizable.

Finally, it is needless to say that the multiple occurrence of dental caries is considerably affected by environmental factors, but surveys on the incidence of dental caries among parents, children and siblings made under the thinking that effects by the congenital hereditary factor inexplicable by environmental factors alone can be overlooked, led to an information that the hereditary factor may have a considerably influential effect upon the incidence.

15. Studies on the Rectal Temperature of the Newborn Infants.
Eiko FUJISAWA
(Dept. Pediatrics—K. Ohta)

I: On the Rectal Temperature of Newborn Infants in 24 Hours after Birth.

Investigations were made on 15 cases of new-
born infants by measuring rectal temperature and the following results were obtained.

1) The mean rectal temperature of newborn infants immediately after birth was 37.62°C with a standard deviation of 0.316°C and had no relationship with such factors as room temperature, body weight and abnormal delivery. It then gradually fell to its lowest value, the maximal decrease being 3.0°C and the minimal 1.4°C. Correlation existed between the rectal temperature after 30 to 90 minutes of birth and the body weight at birth.

2) When the enclosing was delayed up to 35 minutes after birth the body temperature decreased more rapidly.

3) Correlation was found between the time required for the decreased temperature to return to its original value and the body weight at birth; the larger the latter, the smaller was the former.

II: On the Rectal Temperature of Premature Infants.

Continuous measurements of rectal temperature within 24 hours of birth were made with premature infants, using normal newborn infants and older premature infants as controls, and the effects of various factors upon the body temperature were studied.

1) Up to 5th day after birth, the maximal and minimal rectal temperature of premature infants were low, and the daily fluctuations of rectal temperature were also small. In the control newborn infants, on the other hand, both maximal and minimal temperatures were high and the daily fluctuations were large up to 3rd day after birth. Thereafter, up to 16th day of birth, the maximal and minimal temperatures became elevated and the daily fluctuations became large. After 32 days of birth, both maximal and minimal temperatures became 36.0°C or so and the daily fluctuations became small, and there was no difference as compared with those obtained in the control group.

2) The rectal temperature of premature infants was not significantly influenced by such factors as suckling, body movement by weeping, concentration of oxygen and the shape of incubator.

3) When oxygen supply was decreased, the rectal temperature of the premature infants with cyanosis decreased prior to the decrease in the oxygen concentration of blood.

III: Statistical Observations on the Pyrexia of Infants in the Newborn Stage, and on the So-called Transitory Fever.

Statistical observations were made on 4271 cases (1946-1956) of the newborn infants and the frequencies by years, months and seasons of pyrexia without symptoms within 1 week after birth. Including the so-called transitory fever, were determined. The results were as follows.

1) Seven hundred and thirty six cases, or 17.1% of all cases, showed pyrexia of more than 37.6°C within 1 week after birth. Frequency by months showed maximal occurrence in August, and the maximal daily frequency occurred in 3rd day after birth.

2) Yearly frequencies of the so-called transitory fever ranged from 3.7%, and a tendency to decrease is recognized in recent two years. Analyzed seasonally, the maximal occurrence was observed in summer.


Tateno Mizota

(2nd Dept. Pathology - K. Muto)

Morphological examination of subcutaneous fat tissue was carried out using 62 cases of fetuses and 200 of adults from which materials were collected from various sites of the body at autopsy. The results obtained were as follows:

1. The normal basement membrane of fat cells:
   a. The basement membrane of fat cells is consisted of two elements; a network with no polarity of argentaffine fibers and interfibrillar matrix of sol or gel state. This type of membrane was easily demonstrated by ordinary staining method (type III Muto, 1938).
   b. The basement membrane of fat cells was seen proved to be formed for the first time during the 5th fetal month when fat droplet had become moderately big. In the 10th fetal month, lobulated fat tissues were completed which consisted of mature fat cells with basement membrane.

2. Histopathological changes of the basement membrane:
   a. In the foci of bleeding or fibrinoid degeneration, the basement membrane of fat cells showed marked increase in argentaffinity, which fact might be related to inflammation with blood plasma.
   b. Fainting of the basement membrane was found caused by (1) atrophy of fat cells, (2) liquefaction or sparing of the basement membrane due to in-situ growth of cancer cells replacing the fatty droplet or to prolifer-
tive panniculitis, and (3) adhesion of the basement membrane with proliferative interstitium in cases of congestive induration or fibroplastic inflammation.

3. Disappearance of the basement membrane was seen caused by (1) liquefaction due to exudative inflammation and cryptococcosis, (2) destruction due to in-situ growth of metastatic carcinoma, and (3) reconstruction occurring in the granulation tissues of specific or non-specific proliferative inflammations.

4. In lipoma tissue, the basement membrane of the tumor cells was formed usually as in the normal fat tissues, and, even in liposarcoma, tumor cells laden with mature fatty droplet showed no difference in the nature of basement membrane.

5. Mode of growth of the metastatic carcinoma in the fat tissue was classified into two main types: intraparenchymatous and interstitial types.

a. In the intraparenchymatous type, although some sparseness or destruction of the basement membrane was demonstrable, and the general pattern of the basement membrane of the fat tissue is fairly well preserved.

b. In the interstitial type, formation of the basement membrane of metastatic carcinoma was closely related to the histological type of the carcinoma. Carcinomas with wellformed basement membrane mostly belonged to the type of “carcinoma fibroepitheliale, Hueck” or “hypertrrophic type, IMAI” and those lacking or with remarkable basement membrane to the type of “ca. fibroepitheliale-epitheliale”, “ca. epitheliale” or “sprouting type, IMAI”.

17. Study on Mass Urinary Examinations (for Albumin and Glucose).

Yoshio MATSUURA

(Inst. Rural Welfare—F. Yanagisawa)

With 2,813 children enrolled in 3 grammar and junior high schools in a rural community as well as 949 inhabitants in pure farm village of Shibakawa Town of Shizuoka Prefecture as the subjects, the author conducted mass urinary examinations for the presence or absence of albumin and glucose and reported the results analyzed from various aspects. The following conclusions have been obtained from the results.

1. The results on 2,464 (87.8%) children who received the mass urinary examination from among a total of 2,813 enrollees in 3 grammar and junior high schools were that 4.0 and 0.3% of them showed positivity in albumin and glucose respectively. In addition, as a result of reexamination on the total positive children, the rate of albumin-positive children against those in the initial examination became 49.5% and the corresponding rate of glucose-positive children became 45.5%.

2. Mass urinary examination for albumin and glucose was conducted with 949 inhabitants over 13 years of age in a village of Shibakawa Town in Shizuoka Prefecture as the subjects.

1) It was made known that the rate of receiving examination in the initial mass urinary examination was 84.2% against the subjects of examination and that the rate in the secondary one was 71.0%, the rate being lower in the latter. Also, the rate of receiving examination in the two mass urinary examination was 93.8%, with the indication that through the repetition of this urinary examination there is a considerable degree of rise in the rate of receiving examination. Persons who received the examination twice were 585 (61.6%). Judging from the finding by age that the positivity for albuminuria makes a sudden rise from 40 years of age, there is necessity for those over 40 years of age to be the subjects of mass urinary examination. However, in the instance of examination for glucose in the urine, it will be desirable that those over 15 years old will be the subjects.

2) Rate of the positive persons for albuminuria against all of the examined in the village were 16.2% (males 13.9%, females 18.1%), with an extremely high positivity and those determined to be decisively albumin-positive persons in the reexamination were 8.9%. It became apparent that those showing positivity twice in the two mass urinary examinations were continuing to discharge albuminuria. Microscopic examinations on persons positive with albuminuria in the reexamination disclosed that those exhibiting abnormal sediments were 7.9% of all of the examined numbering 890, bringing to confirmation the necessity for examination of sediments in mass urinary examinations.

3) Investigation into the relationship of 46 persons displaying albuminuria in the reexamination to blood pressure revealed that those showing the systolic blood pressure above 150 mm of mercury were responsible for 75.6% of them and those showing the blood pressure below that figure were occupied by persons below 50 years of age.

4) Since it was made clear that in persons with albuminuria disclosed through studies of anamnesis there are few who received medical examination, it is considered that persons with
chronic latent albuminuria were detected as a result of the studies.

5. Rate of persons positive with glycosuria in the mass urinary examination were 1.9% and 4 of them were detected as having diabetes mellitus (above 140 mg/dl of the blood glucose value). These 4 persons have never taken medical examination as with this disease, too.

3. On the basis of the above results of studies, it was recognized that there lies an importance, in rural areas in a meaning different from cities, in the performance of mass urinary examination.

18. Supplementary Information on Bact. Luminosum.

Chihiro YAMAGUCHI

(Inst. Rural Welfare—F. Yanagisawa)

1. In the distribution in sea water and marine products, bact. luminosum were found in marine products at the rate of 7.17%, in salted fish and crustaceans at 12.7% and in sea water at 33.3%, thus being of exceedingly wide distribution in fish and crustaceans.

2. Of the 40 strains of bact. luminosum isolated, 30 strains, (75%) were possessed of halophilic property and the remaining 10 (25%) were non-halophilic bacteria, but the latter had a better growth in a culture medium added with NaCl at 2 to 3%. Thirty strains belonging to halophilic bacteria required 0.5% NaCl, 2 to 3% being the optimum concentration and resistance to this compound was low (0.25–0.75 mol).

The halophilic bacteria also grew on the culture medium with the addition of a fixed quantity of inorganic salts other than NaCl and there was difference in the growth dependent upon the salts. That is, these strains are in need of salts because of necessity, for their growth, of a definite osmotic pressure on the culture medium and no strains requiring special ions were recognized.

3. Luminescence became weakened in conjunction with the repetition of aerial cultivations on the peptone slant agar culture medium added with 2% NaCl and after 10 months it was perceived in only 5 of the 40 strains.

4. As regards the composition of culture medium and the growth on it, sufficient growth was observed in peptone, while no growth was noted in the composite culture medium.

5. In respect of the hydrogen in concentration, quite few of the strains grew on the acid medium, the power of resistance to heat was exceedingly weak and many were penicillin-resistant, but some were susceptible to this substance, there being a general tendency of susceptibility to antibiotics such as tetracyclines.

6. The isolated 40 strains could be divided into 10 groups based on a variety of forms and biochemical properties. According to the classification, many of the strains were in conformity with photobacterium phosphorum described in the Bargay's Manual. However, difficulty was encountered in the identification of the strain of non-halophilic bact. luminosum. In one strain chitin-resolving power was noticed and this is the first report on the resolution of chitin by the photobacterium.

By the way, this bacteria may be called p. harveyi on the basis of biological properties of starch, gelatin etc., but according to a review of literatures this may be considered, from the standpoint of halophilic quality, to be a variant species of p. harveyi. In connection with the biochemical properties, presence of lecinthinase could be detected in 72.5%, though different in the case of egg-yolk-agar medium from that seen in safran.


Takeshi MUNEYUKI

(1st Dept. Internal Medicine—K. Yanagi)

There are a few cases of beri-beri resistant against Vitamin B1 therapy. Recently, it has become controversial that there is a disturbance of Vitamin B1 activation in these cases.

It is the purpose of the present study to detect this disturbance of activation by administration of activated Vitamin B1, "co-carboxylase", for the Vitamin B1 resistant patients with beri-beri. Further observations were made on beri-beri-like syndrome frequently seen in diabetic patients. As a result, above 80% of the patients were healed by the administration of activated Vitamin B1.

It was confirmed, in other words, that Vitamin B1 in active form was quite effective for the patients resistant against Vitamin B1.

Observations of the clinical findings and determination of Vitamin B1 value in the blood were made together with the liver function. It was concluded that the Vitamin B1 resistant beri-beri was caused mostly by the disturbance of the Vitamin B1 activation, that is, the disturbance of phosphoriation mainly in the liver. Moreover, it was cleared that the loss of tendon

Sanetsu IMAI
(Dept. Pediatrics—K. Ohita)

The effect of sodium glucuronate on the toxicity and antigenicity of tetanus toxin in vitro was examined and results were as follows.

1. Concentrated tetanus toxin was added with the same amount of 25% sodium glucuronate. As a control, 20% glucose or buffer solution (M/60 phosphate buffer saline containing 0.02% gelatin, pH 7.4) was added instead of glucuronate solution. The formal toxoid was also prepared by adding 0.4% formalin.

These solution were kept at 37°C with toluene and tested their toxicity by mice subcutaneous method.

The toxicity of the glucuronate toxin decreased gradually and was lost completely after 2 or 3 weeks, while the change in the control toxin was slight. The rate of detoxification was much larger in the formal toxin. Glucose failed to replace glucuronate as the detoxifying agent.

2. The flocculation test showed that the Lf value decreased by 20% in all toxin solutions kept at 37°C. However, the Kf was significantly longer in case of the glucuronate toxin.

In order to test the antigenicity in vivo, 10 and 50 Lf of glucuronate toxin and formal toxoid was injected into two groups of 6 guinea pigs. Another group received 4 and 20 Lf of standard tetanus toxoid (National Inst. of Health, Tokyo). The antitoxin content of the these was measured by mice method after 6 weeks.

The mean titers were respectively 0.015 u/ml and 0.064 u/ml in the glucuronate toxoid, 0.009 u/ml and 0.107 u/ml in the formal toxoid and 0.330 u/ml and 0.591 u/ml in the standard toxoid group.

Although the antigenicity of the glucuronate toxin or formal toxoid was significantly lower than the provisional standard tetanus toxoid of National Inst. of Health, Tokyo. The difference between formal toxoid and glucuronate toxoid was not significant by statistical analysis.

These results show that glucuronate was able to convert tetanus toxin to toxoid whose antigenicity was comparable the formal toxoid.


Tadao ABE
(Dept. Neuropsychiatric—T. Shimaraki)

Schizophrenics, who were convalescing from the acute stage were studied, particularly regarding their attitudes towards the acute stages that had passed. These attitudes were classified into six types according to what impression the acute stage gave to each patient.

1. that of “episode”
2. that of “vivid impression”
3. that of “the second life”, “emptiness”
4. that of “closed life”, “discontinuity”
5. that of “optimistic emancipation”
6. that of “passive acceptance—floating existence”

These types of attitude reflect changes of self-consciousness and show various stages of the schizophrenic process.

It is author’s opinion that the schizophrenic process should be understood primarily as something that deeply affects the patient’s life, rather than just one of diseases. It is therefore very important to study attitude of schizophrenics towards their disease.

22. Clinical and Experimental Study on Digestibility of Starch in Stomach by Human Salivary Amylase.

Shoudzu HASE
(1st Dept. Internal Medicine—K. Yanagi)

The study reported below were designed to determined the digestibility of starch in human stomach. 100 individuals were fed 300 to 400 g. of experimental meal containing 7% starch plus 0.5 to 1.0 g. of table salt. The following facts were resulted.

1) Ingested starch admixed with saliva even still continued to be disintegrated in stomach. Density of reduced substances in stomach reached maximum 30 minutes after eating and corresponded with 2.5–61.5 mg/cc of maltose. There were remarkable differences in individuals.

2) Maltose amount in instances of anacidity and hypoaclidity valued remarkably high, average of 33.6 mg/cc, compared with instances of normoacidity and there was a little individual difference in the former two. It was recognized that there existed a clear discrepancy between instances of anacidity and hypoaclidity, and one of normoacidity. There was, however, not so much difference between instances of hyperacidi-
23. Gastroptosis and Its Medical Management.

Hiroshi OKAMURA
(1st Dept. Internal Medicine—K. Yanagi)

The study reported here was aimed to illustrate the cause and concept of gastroptosis. In the 1st Report, a dynamic observation on gastroptosis was made by the X-ray examination, compared with healthy persons. It was confirmed, as a result, that hypotonicity was an inevitable component in developing gastroptosis.

The 2nd Report, clarified from a standpoint of the clinical findings that gastroptosis was caused eventually by hypotonicity of stomach. The report continued to say that its hypotonicity was assumedly brought about due to panavitaminosis, in which vitamin B₁ was considered to play an important role.

In the 3rd Report, following observations were performed in this respect. 55 patients with gastroptosis were administered 3 g. of Panvitan daily (Panvitan is remedy of vitamin complex). The follow-up observation was made for one month to one year. It was resulted that the 51 patients, 91% of the total, had good results in the X-ray examinations and had nothing to complain.

It was concluded from the clinical experience above mentioned that gastroptosis was caused by the hypotonicity of stomach and its hypotonicity was brought about mainly due to deficiencies of various vitamins.


Tsuneo ABE
(2nd Dept. Internal Medicine—S. Obuchi)

To determine nutritional condition, serum albumin value is most valuable.

So, in an attempt to define the ECG findings in undernutrition, we adopted the serum calculated by Biuret method as the index of nutritional condition and analyzed the ECG findings of 20 patients whose serum albumin values were below the level of 3.49 g/dl, but in whom no particular organic, infectious or parasitic diseases were found.

1) PQ interval, QRS interval and P wave were within normal limits.
2) Electrical axis as viewed from the QRS vector was intermediate, semi-vertical or vertical.
3) ST segment inclined to become depressed, and low or inverted T waves often appeared.
4) Sometimes low voltage of the QRS complex was found.
5) Decrease in serum albumin value was accompanied by increase in QT-ratio.
6) Decrease in serum albumin value was associated with decrease in SV₁+RV₄ value which is said to represent the projection in the horizontal plane of the potential of the heart muscle.
7) Decrease in serum albumin value was associated with decrease in the size of ventricular gradient.

On the basis of these findings, we understood that decrease in serum albumin value would manifest itself electrocardiographically as a series of changes related to the decrease in the potential of the heart muscle, finally showing "low voltage".

In summary, it was presumed that undernutrition, especially hypoalbuminemia, would cause change in heart muscle and so impair heart function.

25. Factors Contributing to the Ingravescence of Pulmonary Tuberculosis—Estimation of the Effect of Chemotherapy on the Basis of Blood Picture—

Tom TAMADA
(2nd Dept. Internal Medicine—S. Obuchi)

With a view to predicting the effect of chemotherapy on individual pulmonary tuberculosis patients from the host’s side, the author adopted as its indicator the undernutritional condition, esp. hypoproteinemias, the conclusion reached upon by his colleagues in their study of a factor on host’s side in the gravescence of pulmonary tuberculosis. Among the blood findings, hemoglobin values, serum albumin values and Gros values are now considered to be useful for the diagnosis of undernutrition. Accordingly, the author decided to study the relation between such blood findings and the gravescence of disease conditions, between the former and the effect of chemotherapy, and the applicability of the dis-
26. Studies on Deposition Mechanism of Heavy Metal Salts in Hard Tissue.

Akira Asoda
(Dept. Pharmacology—M. Okada)

The vital staining of hard tissues by lead acetate, devised by Okada and Minuma in 1938, is a method whereby a micro-quantity of lead acetate is injected into an animal and the deposited lead is proved histochemically as a distinct fine line. By the use of this method, the author attempted to clarify the deposition mechanism of lead in hard tissues and form of the lead salt in blood by analysis of the blackening grade of lead lines on growing teeth of an animal. Results were as follows:

1) Comparative intensity of deposition of various metal salts in hard tissues: The deposition of lead, which has the minimum solubility product as the phosphate was for superior than the other metals and degree of deposition lessened in the order of silver, copper and zinc. Thus, the deposition of a metal in hard tissues was found to approximately parallel to the solubility product of their phosphates.

2) Form of metal compounds which undergo deposition in hard tissues in circulating blood: The present experimental results have indicated that the type of lead that undergoes deposition in hard tissues is neither in ionic form nor a sparingly soluble salt form but a type (intermediate compound) that combines with some substance in competition with calcium. It is believed that lead takes this form because lead salts introduced into the blood is present for a definite length of time and the stored lead that goes into circulation by variation in composition of body fluid deposits in dentin. This intermediate compound is considered to be not specific to lead but common to all metals that undergo deposition in hard tissues.

27. Influence of Teeth Extraction and Subsequent Insertion of Denture upon the Oral Bacterial Flora.

Yasuhito Yagasaki
(Dept. Microbiology—F. Shimizu)

Quantitative observations were made on the numerous variation of oral bacterial flora—total aerobic, anaerobic bacteria, streptococcus, neisseria, lactobacillus, fusobacterium, and veillonella
—after tooth extraction and subsequent insertion of denture. Results were as follows:
1) It was observed that, in many cases, the tooth extraction tends to effect a gradual decrease of total aerobic flora or of individual streptococcus, neisseria-species with an exception of lactobacillus, which shows a striking diminution immediately after tooth extraction.
The decreasing process of total anaerobic flora following the loss of anaerobic conditions by tooth extraction is not rapid but gradual one. Thus, the number of fusobacterium and veillonella did not tend to decrease significantly even in 20 days after tooth extraction.
2) When the dentures are inserted and worn regularly, the number of aerobic bacteria increased to a degree of before-extraction. And a rapid and significant increase of anaerobic bacteria (fusobacterium and veillonella) was observed after wearing of dentures.
3) Results were discussed in view of the existent mechanisms of those bacteria in the oral cavity.

   Nagasawa NAKAMURA
   (Inst. Rural Welfare—F. Yanagisawa)

   From the hygienic bacteriological point of view, the author has carried out several studies mainly on the process of purification in provisions with 40 strains of photobacterium and reached the following conclusions.
   1. It becomes clear that the resistivities of the examined 40 strains are generally feeble against the various antisepsics such as sorbic acid, dehydro acetic acid, methyl-naphthoquinone, two kinds of furan derivatives, hinokitiol and two kinds of photosensitizing dyes.
   2. It is found that the examined 31 strains of halophilic bacteria become extinct quickly in the distilled water and also in the extracts of raw marine products. However, they do not die in the extract of marine products which is likely to contain NaCl. Non-halophilic photobacterium do not die soon in the above mediums.
   3. As the results of food-purification experiments with the examined 40 strains made to various kinds of heated botanical and zoological foods, it becomes clear that the action of purification are also feeble for many kinds of provisions. Strains groups which identified to be photobacterium phosphorum are hardly related with the purifications.

4. It becomes clear that few kinds of amino acids are usable for the bacteria group of the photosphorium, as the results of study to use many kinds of amino acids as the nitrogen source.

   Akira TSUKATA
   (2nd Dept. Pathology—K. Muto)

   Histological investigations of the skeletal muscles collected at autopsy from 45 cases of femurs and 75 of adults, were conducted aiming at the solution of some problems concerned with the basement membrane. The results obtained were as follows:
   1. Development of the basement membrane:
   a. After the 4th month of fetal life, the perimedium was proved to penetrate into the muscle bundles and to become thinner and thinner until it finally surrounds each individual muscle fiber as a reticular structure called endomedium (the initial basement membrane of the muscle fiber).
   b. At the 10th month fetal life, the adult structure of the skeletal muscle interstitium has been completed.
   c. During the later half of fetal life, the argentaffine fibers forming basement membrane showed tendency to run transversely to the long axis of the muscle fibers (transverse polarity of the basement membrane). Polarity of the basement membrane appeared earlier in the muscles of the extremities than in the lingual and diaphragmatic muscles. This fact seemed to suggest the existence of a close relationship between the structural development of the muscle fibers and their function.

   2. Morphological alterations of the basement membrane:
   a. In the cases with myositis and metastatic tumor in the paas muscles, the basement membrane of the regenerative muscle fibers demonstrated very fine and reticular structures which were considered to be consistent with immaturity of the membrane.
   b. Intensified argentaffinity of the basement membrane was noticed in some foci of coagulation necrosis, bleeding, leukemic infiltration and exudative inflammation, which fact were considered to be related to focal imbibition of blood plasma.
c. Increasing density of the basement membrane was recognized associated with atrophy of the muscle fibers, edema, proliferative myocytis and compression atrophy by metastatic carcinoma.

d. Rarefaction or fainting of the clear membrane structure of the basement membrane was observed in the cases with various common inflammation.

e. Melting out of the basement membrane was demonstrated in some foci of suppurative myocytis and amebic abscess.

f. In rare cases, inflammatory cells or cancer cells were observed invading into the muscle fibers and proliferating at the cost of myoplasma surrounded by almost intact, original basement membranes.

30. Morphological Study on Vasculature of the Papillary Muscles of the Human Heart, Particularly on the Arterial System.

Yasuo MATSUI

(2nd Dept. Pathology—K. Muto)

The present investigation deals with a thorough study on the structures and lesions of the arterial branches within the papillary muscles of 14 hearts, obtained at autopsy of the Japanese, ranging from 8 fetal months to 75 years in their age. The materials were cut in complete serial sections and observed in the elstica-van Gieson staining.

1. Sclerosis of the arterial branches were classified into 4 basic types.

Type I. This pattern of sclerosis is initiated with circular elastic muscular hyperplasia of the intima, subsequently resulting in disappearance of the media. The established lesions coincide in appearance with the “Drosiarterien” (Zink), “Poliarterien” (Bucher) and “Sperrarterien”.

Type II. The lesion is initiated with lamellar elastosis of the intima, which soon will be followed by degeneration of the elastic fibers and finally disappearance of the media. It should be considered as a degenerative process.

Type III is a combination of the type I and II, while type IV a transitional form of the two.

2. The basic types of lesions are often modified by edematous type and hyalination. The former modification was frequent at the basal position of a papillary muscle, while the latter at the tip of it.

3. Type I was predominantly observed at the anastomosing arteriæae. The lesions apparently increased in number with the increase of the age of the patients. Considerable proliferation of the intimal muscular fibers may give the appearance which coincides with the “Zwitter-Gefäss” (Bucher) or “The arteries with abundant longitudinal muscle fibers” described by Morit and Taira.

4. The lesions classified into Type II were frequent at the branchings of the arteries and the tip of the papillary muscles, and observable even in the infantile heart of as early as 12 days of life.

5. Type III lesions frequently involved the dividing portions and/or their vicinities, as well as at the tip of a papillary muscle. The lesion often tend to hyalinize in the superficial layer.

6. Type IV lesions were found at the tip in multiple numbers, and they were found also even in a one year and 2 months infant. Association of this type of lesion with Type II in adults and with Type I in infants was observed.

7. It is emphasized that the sclerotic lesions initiate in the intima, and that the histogenesis as well as the distribution of them indicates the importance of the mechanical factors based upon the activity of the heart papillary muscles in their causation.

8. By means of tridimensional reconstruction, the author demonstrated tortuous arteries (Torsionsarterien, Muto 1958), which mostly failed to show sclerotic changes and were characterized by the presence of loose adventitious tissues.

9. The solitary fibrotic focus in the tip of the muscle revealed a specific vascular architecture which should be regarded as an angiosarcomatous formation associated with arteriovenous shunt.


Masayoshi KONO

(2nd Dept. Pathology—K. Muto)

One hundred and seventy-seven human livers, including 25 livers of fetuses, 21 non-remarkable liver of infants and adults, and 125 with pathological change, were histologically examined in this study.

1. An immature basement membrane (Type II, Muto, 1958) was found appearing first as
early as in the 2nd fetal month along the sinusoids both around the central veins and portal areas, whereas in the middle of the acini, a definite basement membrane is lacking, although the presence of the fetal type (Type I) of basement membrane may be assumed. The mature basement membrane of adult type (Type III) were completed in the 3rd postnatal year all over the entire sinusoid system.

2. Pathological alterations of the basement membrane:
   a. Intensified argentaffinity of the basement membrane of the basement membrane, apparently related with plasmal imbibition, in some such foci as of central hemorrhage, coagulation necrosis and leukemic infiltration.
   b. Thickening of the basement membrane, associated with mechanical dilatation or narrowing of the sinusoid, in cases of peripheral congestion, as the perifocal regions of abscess and granuloma, in the hyperplastic parenchyma of cirrhotic livers and in the parts with leukemic infiltration.
   c. Sparseness and destruction of the basement membrane as revealed in some central bleeding foci, in the abscesses and granulomas, at the sprouting front of the metastatic carcinoma and in areas with several leukemic infiltration.

3. Changes of the basement membrane related with metastatic carcinoma:
   a. The modes of the initial stage of growth of metastatic cancer to the liver are divided into two main types, namely, "intrasinusoidal growth", and "intra trabecular growth". The former means intravascular growth and the latter parenchyma-replacing or "in situ-growth, Strauses". In both cases, the sinusoidal basement membrane did not show any destructive change. Thus, the mode of growth in early stage of metastasis could be regarded as consistent with that of the "carcinoma epitheliale, Hueck".

   In advanced stages, the centers of the cancerous masses became fibroelastic and the basement membrane specific to the tumor tissue itself were formed around the tumor parenchyma, resulting in destruction and reconstruction of the original basement membranes of the liver sinusoids. In other words, advanced stage of a metastatic cancer manifested a structure of "Carcinoma fibrocystellal, Hueck"", irrespective of its growth mode in the liver.

b. In acute leukemia, marked destruction of the basement membrane was noticed, while in chronic leukemia, sparseness, liquefaction and thickening of the membrane of various degrees were observed.

32. A Morphological Study on the Lymphnodes, Especially on the Relationship with Metastatic Carcinoma.

Kenji FURUKAWA
(2nd Dept. Pathology - K. Muto)

The lymphnodes collected from 144 autopsy and biopsy cases were examined. In 20 cases, the nodes were non-remarkable or showed pathological changes of various kinds but no tumor metastasis. One hundred and twenty-two nodes from the remaining cases contained more or less metastatic carcinoma. The results obtained in this study were as follows:

1. As far as the normal lymphnodes were concerned, there was no dense membranous structure but moderately sparse basement membrane beneath the endothelial layer of the lymph sinus wall. This fact might be partly responsible for the free lymphatic flow between the follicles and sinuses. Condensation into a membranous structure of the sinus basement membrane was, on the other hand, associated with disturbance of lymphatic circulation in the nodes.

2. Changes of the basement membrane of the lymph sinus in neo-blastosarous lymph nodes:
   a. In the nodes with sinus catarrh, the membranous structure along the sinus wall disappeared due to melting out of argentaffine fibers and matrix in the basement membrane.
   b. In the node with chronic lymphadenitis showing sinus reticulosis, the basement membrane of the sinus wall became markedly dense and thickened.
   c. In the nodes with proliferative lymphadenitis where adhesion of the sinus wall induced multiple adenomatosid structures of various size in the sinus lumina, the basement membrane of the sinus showed marked changes and became highly manifested, demonstrating some similarity with the lesions in the extracapillary type of chronic glomerulitis.

3. Changes of the fiber system in the lymphnode with metastatic carcinoma:
   a. Mode of growth of metastatic carcinoma in the lymphnodes was divided into two main different types: the "intrasinusoidal type" and the "intra-parenchymatous type".
   b. In the intrasinusoidal type of growth, neoplastic cells were seen infiltrating into the sinusoidal spaces, replacing the sinusoidal lumina.
and resulting in so-called carcinomatous sinus catarrh, when the basement membranes of the sinuses became markedly denser. If followed by follicular reticulosis or fibrosis, the condensation was much more distinctive.

3. In the intra-parenchymatous type, formation of the basement membrane of metastatic carcinoma seemed very closely related to the histological type of the carcinoma. The basement membrane was formed very well in carcinoma of type "carcinoma fibroepithelialle" and very little or none in cases of types "ca. fibroepithelialle-epithelialle" or "ca. epithelialle".


Goichirou HIGUMA
(2nd Dept. Pathology—K. Muto)

A histological study was performed on 140 cases human fetus ranging from the second to tenth foetal month. Staining procedures included PAP's silver-, PAS-, Azan-stain, etc. In the early stage of differentiating dental lamina, the silver fibers of the basement membrane show a loose reticular arrangement. In the bud stage, the basement membrane becomes denser associated with the development of the dental papilla. In the cap stage, the basement membrane at the portion of internal enamel epithelium shows moderately dense arrangement but loose reticular at the enamel knot. In the bell stage, the basement membrane in the portion of dental papilla becomes scarcely visible in silver stain. On the other hand, distinct membranous features of the basement membrane were noted at the portion of the outer enamel epithelium. In the stage of dentin formation, the basement membrane of the dental papilla becomes dense, and deposition of dentin ground substance occurs beneath the original basement membrane. At the external portion of the enamel organ, the basement membrane is distinct and papilla formation is observed accompanied by capillary proliferation. At the portion of epithelial sheath, however, the basement membrane shows, in its perpendicular pattern, a smooth-lined contour. The above findings indicate that the morphological architecture of the basement membrane is closely related with activation of the mesenchymal tissues and proliferation of the epithelial cells.


Yoshihiko YAMASHITA
(2nd Dept. Pathology—K. Muto)

In total 120 pairs of the lung, 53 of the fetuses of various stages and 67 of the adults up to 20 years of age, were examined in this study. The results obtained were as follows:

1. The first appearance of the elastic fibers along the bronchial system began in the walls of the larger bronchi as early as in the 4th fetal month. They develop until the entire bronchial system is covered at the 5th month of the fetal life.

2. In the later half of the fetal life, development of the bronchial elastic fibers still continues gradually up to the 10th month in their stainability, thickness and number.

3. Postnatal development of the elastic fibers of the pulmonary system seems to be promoted by the influence of the respiratory function.

a. In a mature-born infant who died at 38 hours post partum, elastic fibers in the diaphragmatic ring of the alveolar ducts (Orsés) and its wall showed intensified stainability. In another case of 2 month of age, elastic fibers of the respiratory system showed marked increase in thickness and number.

b. In premature-born infants, none of the elastic fibers in the alveolar system was demonstrated intensified in stainability at least during several postnatal days. First after the 21th postnatal day, moderate development of the elastic fibers was observable.

c. In the atelectatic foci seen in an infant on the 6th postnatal day, stainability of the alveolar elastic fibers was found very low.

4. Elastic fibers of the respiratory bronchiole, alveolar ducts and alveolar sacs reached the maximum in number about a year after the birth, while their thickness continued to grow until 7–8 years of age.

5. Localization of the elastic fibers of the respiratory system:

a. Elastic fibers of the embryonal bronchial walls first appeared in the lamina propria. In the postnatal development, they were partly involved in the secondarily formed hyaline layers beneath the basement membrane. Development of the submucosal elastic fibers was especially marked at the part of protrusion of the mucosal folding. Elastic fibers of the bronchial muscle layers, bronchial cartilages, and intercartilaginous band showed development corresponding
with the postnatal growth of the bronchial system.

b. Elastic fibers of the alveolar ducts and sacs develop, together with the smooth muscle fibers, as an important structural element for the respiratory function of the alveoli.

35. Clinical Study on Liver Function and Fat Intake Tolerance.

Hideo SHISHIDO
(1st Dept. Internal Medicine—K. Yanagi)

The author classified 59 liver patients into 3 classes, light, moderate and severe, according to their liver functions and gave to each of them 3 kinds of diet, containing 20, 40 and 60 mg of fat respectively, with the protein amount 80 mg and Calory 2400.

Then the acetone body of blood and urine was determined quantitatively.

Next, the drug was administered, the fat intake tolerance was studied, obtaining the following results.

1) In liver patients, the acetone body in blood increased according to the degree of liver damage and amount of fat intake. Acetone body of urine was very proportional to the one of blood, but on the contrary, patients with severely damaged liver function and in patients with over 40 mg of fat intake, it decreased.

2) By using the lipotropic substance and many kinds of vitamins, tolerance of fat intake rose to 60 mg a day in epidemic hepatitis, but in cirrhosis 40 gm was the maximum.

So the result of author's experiment in liver patients, a low fat diet should be recommended and high fat diet should be avoided, although the Japanese eat normally 40 gm of fat a day.


Akira AMANO (Dept. Pediatrics—K. Ohta) and Mitsuo YOKOYAMA (Dept. Legal Medicine—T. Furuhata)

Since human hemoglobin was classified into certain types by Pauling, Singer and Wells in 1949, many investigators have attempted to analyze the different types of hemoglobin in humans and in animals.

The authors investigated the hemoglobin in Japanese of different ages and in animals by paper electrophoretic method and obtained the following results:

1) Hemoglobin from cord blood and newborns showed electrophoretically faster moving components than adults and found distinct differences in classification of Hb-F and Hb-A.

2) The hemoglobin from familial hemolytic anemia patients demonstrated a quite similar electrophoretic component with Hb-F. It could be presumed that the patient's hemoglobin contains Hb-F or other abnormal hemoglobin than normal adults.

3) Differences of hemoglobin in certain animals could not be detected with the present technical methods. However, this investigation is continuing.


Haruo SHIZUYA
(2nd Dept. Internal Medicine—S. Obuchi)

For the purpose to grasp the relation between the clinical effects of chemotherapy mainly by administration of large doses of INH and changes in biological reactions in practice of the chemotherapy, 11 patients whose background factors were comparatively similar to one another were chosen out of inpatients of this hospital, and combined treatment of streptomycin, INH and PAS was given to them. Minute investigations were continued on 29 items for nine months. Also total protein, A/G, and albumin in serum were investigated in 80 cases. The results were as follows. 1) Changes in biological reactions were nearly within the normal limits, and uneventful effects were observed only in one patient. 2) Vital capacities, maximal breathing capacities, air velocity indexes, tendon reflexes, hemoglobin amounts, red cell counts, total protein, albumin and A/G amounts in serum, Gros reaction values and blood sugar levels of all the examined patients tended to center around the same levels in the third or fourth month.

3) Total protein, A/G, and albumin in serum of all the patients, including both those whose values before the experiment had been higher and lower, centered around certain levels in four to six months. This period was nearly in consistency with the improving period of X-rays. The flicker value also showed the similar tendency.

4) Among untoward effects of large dose administration of I M S, the relation between appearance of gastroenteric disturbance and total protein, A/G and albumin in serum, and that between appearance of nervous disturbance and the latter were investigated. The two relations
were contrary to each other and therefore these two untoward effects were considered to be of different natures. While nervous disturbance appeared sooner as A/G was higher, gastrointestinal disturbance appeared later as A/G was higher. The same tendency was also noted in the values before the experiment, therefore it seemed possible to assume appearance of untoward effects of large dose administration of INH from A/G in blood.

38. Study on Febrile Convulsion in Children.
Ryuji SHIMADA
(Dept. Pediatrics—K. Ohta)

I Statistical Observation on Febrile Convulsion.
Statistical observation was made on 90 children with febrile convulsion and the following results were obtained.

Febrile convulsion was encountered in 0.74% of the total number of pediatric patients, accounting for one-third of those who have ever experienced convulsive fits. The initial attack of febrile convulsion took place most frequently in 1 to 2 years of age with 92% of the total cases occurring at less than 3 years of age and male children were more affected than female ones. The number of the convulsive attack was less than three times in 80% of the cases and the type of generalized (grand mal) convulsion was observed in 69% of them. Body temperature at the time of attacks running between 39 to 40°C was noted in 47.8% of the cases and 53% of them developed convulsions within one day after pyrexia. Convulsive seizure made its appearance most often in summer and underlying disease for the fever was acute pharyngitis in the majority of cases (62%). In 12.2% of children with febrile convulsion, there were abnormal findings at birth, and families in 20% of them had experienced the convulsive attack.

II Study of Febrile Convulsion from the Standpoint of Constitution.
With the use of test slips for constitutional propensity designed by Prof. Enjoji, the author examined 41 cases of febrile convulsion as to the degree of constitutional propensity, presence or absence of constitutional diseases, constitutional signs and goose flesh reaction, performed on 5 in-patients the thorn test as the test for the effectiveness of autonomous nerve drugs and obtained the following drugs.

The mean value of scores for the constitutional propensity was 4.22 with a strong trend toward abnormalities. Constitutional diseases were most often eczema, urticaria and asthma, and cases of auto-intoxication were not many. Skin and hair signs represented a majority of constitutional signs.

Goose flesh reaction was positive in 70% of the cases. In the test for effectiveness of autonomous nerve drugs, the five total cases yielded abnormalities, whereas in the Thorn test, the mean value of acidophilic cells decreased by 31.8% and it appeared that there was a slight decline in the preparatory ability of the adrenal cortex.

III Clinical Observation of Febrile Convulsion.
Electroencephalograms of 46 pediatric cases of febrile convulsion as well as of 13 cases of febrile diseases without seizure and 6 cases of artificially induced fever as controls were recorded and further clinical findings of 5 pediatric in-patients were examined, with the following results obtained.

Abnormal brain waves were noticed in 8 (17.4%) of 46 cases affected with febrile attack and the rate of appearance of these waves was high in children who were more than 7 years of age at the time of recording and children who had the initial attack at less than 1 year of age and more than 4 years of age. Abnormal brain waves exhibited neither localized nor focal lesions, but only diffused ones such as spike and wave or paroxysmal slow wave burst. As regards the brain waves at the time of fever, irregularly high voltage slow waves were displayed, at the highest body temperature, predominantly in frontal and occipital regions. Moreover, in respect of spinal fluid findings on in-patients, high pressure, increased sugar contents, reduced number of cells, decreased quantity of protein and its transparency as clear as water were manifested, and these findings were in parallel rationship with meningial symptoms and after lumbar puncture, the body temperature made a rapid fall with the subsequent disappearance of meningial symptoms.

Hiromitsu YOSHIMURA
(Dept. Biochemistry—S. Miyamoto)
(Dept. Gynecology—K. Fujii)

A vasopressin preparation was analyzed with high potential paper electrophoresis, while pure lysine was treated at the same time as a scale. It was revealed to be far from pure in contrast
to synthesized oxytocin (Syntocinon) compared with extracted one (Atonin).

40. Examination of Experimental Conditions for High Potential Paper Electrophoresis of Chemical Components of the Cornea.

Isao USUI
(Dept. Ophthalmology — J. Otsuka)

To decide the most suitable condition of high potential paper electrophoresis for the chemical components of the sclera, the cornea and the retina, using the cornea of the horse as its material, the author tried in several conditions. Namely, as its solution, the author used acetone, ethanol and methanol. Among these three, the electrophoretic figure by methanol was finest. The time which was lasted high potential (111 V/cm) was tried at 5 min; 10 min; 15 min; 20 min; 25 min. As the time, most suitable figure was indicated at 25 min. So the author determined to employ 4 KV (111 V/cm), 25 min. and methanol as its solution all through his experiments.

41. Anemia and Acidity of Gastric Juice of Patients of Pulmonary Tuberculosis.

Haruo SHIZUYA
(2nd Dept. Internal Medicine — S. Obuchi)

1) Expand of foci and red cell picture of patients of pulmonary tuberculosis.

Investigations were made on the blood of 100 patients taken immediately after hospitalization. In the male patients, the red cell count and hemoglobin amount of the serious patients were lower with 1% level of significance than those of the patients of middle and light degree. In the females, such definite difference was not noted among the three degrees. As for Ht, MCH, MCV, and MCG, no significant difference was noted among the three degree in both sexes.

2) Acidity of gastric juice and red cell pictures of patients of pulmonary tuberculosis.

Measurement of acidity of gastric juice and blood examination were done in 46 patients. In observation of correlation between the acidity and blood pictures, positive correlation was noted between the acidity and red cell count, Hb and Ht in the female patients, but no special relation was observed in the male patients. Correlation was not observed in the whole observation of both sexes.

42. A Study of Liver Iron in the Newborn.

Akira YASHIMA
(Dept. Pathology — K. Ohta)

A systemic histochemical examination of the liver and spleen of newborn infants was performed. The material represents 77 newborns and early infants. Wöhler's iron staining technique was utilized for the demonstration of iron in the liver and spleen. Appearance of the tissue iron reaction was classified as to localization and intensity.

1. Iron was histochemically demonstrated in the liver in 62% of all newborns and 59% of the suckling infants.

2. The liver iron was found deposited either in the liver cells or in the stellate cells in both series, but the role played by the stellate cells was greater in the newborn than in the early infancy. This appeared to mean an elevated iron metabolism during the neonatal period.

3. The deposition of hepatic iron appeared to begin from the central zone and extend to the peripheral zone. However, in the majority of the cases, there was no significant difference in the three zones of the hepatic lobules.

4. Among the premaature newborn, a distinct depression of liver tissue iron quantity occurs at the fetal age of 8 to 9 months. The findings are consistent with those of P. Becker in 1928.

5. Very immature liver cells showed never iron deposit. However, after a certain stage of morphological development, there was no direct correlation between the relative liver weight and the estimated iron quantity.

6. The hepatic iron, intrahepatic hematopoiesis, PAS positive substance in the hepatic cells showed quantitative parallelism. However, high content of glycogen usually excludes the appearance of iron in the hepatic cells, and undifferentiated liver with high hepatic hematopoiesis showed little of tissue iron.

7. With the increase of the intensity of icterus neonatorum, there is a paralleled increase in stellate cell iron.

8. An analysis of the relation between the hepatic tissue iron and different kinds of neonatal diseases was difficult.

9. The hepatic and splenic iron contents showed an antagonistic behavior.
43. Clinical Studies on the Diagnostic Value of Electroencephalography in Cerebral Vascular Lesion and Neoplasm and on the Diagnosis by Electroencephalography in Several Other Diseases.

Juzichi KUROTAKI

(1st Dept. Internal Medicine—K. Yanagi)

The author studied the electroencephalograms of cerebral vascular lesions, cerebrospinal fluid, nephritis and diseases of the internal glands.

The author found a greater rate of abnormal electroencephalograms in the cerebral vascular lesions. In many cases the electroencephalograms are not always of use in localizing the focus other than to locate the side of the focus, but the degree of the abnormality of the electroencephalogram is directly proportional the arteriosclerosis in the occipital fundus, hypertensive or arteriosclerotic changes of the heart and the kidney. The electroencephalographic abnormalities are closely related to the functional recovery after an apoplectic attack. The functional recovery is good in patients who have long continuous eminence slow waves and dysrhythmia, and generally good in those who have a slight electroencephalographic abnormality.

In the case of subarachnoid bleeding, the author found an abnormal electroencephalogram on the side of the brain where an aneurysm was found by angiography and therefore was able to localize the area of bleeding by electroencephalography.

In the cerebral neoplasm, primary supratentorial neoplasm can be detected electroencephalographically as to side the neoplasm is located and localization. Therefore the use of electroencephalography is best indicated in this case.

In the cases of the tumor of the pituitary gland, the author found paroxysmal slow wave bursts. At the stage when the symptoms of brain tumor and especially the functional disturbance of the pituitary gland do not appear fully, also diagnosis can be made by electroencephalography.

In the infratentorial tumor, localization electroencephalographically is not clear, but at the stage when the symptoms of neoplasm do not appear so eminently yet, and seem to be rather neurotic complaints, the electroencephalograms show bilateral theta waves and dysrhythmia, thus being diagnosed as cerebral neoplasm.

In the cerebral metastasis of malignant tumor, it is very difficult to differentiate it from the usual cerebral vascular lesions. In the case when metastasis is considered, cancer of the lung causes metastasis most frequently in the brain. Therefore, it is necessary to take an X-ray of the chest.

But there are cases where there is no noticeable shadow of cancer in the chest with metastasis in the brain. So in case when there is a marked abnormal electroencephalogram bilaterally and severe dysrhythmia, cerebral metastasis must be taken into consideration. On the contrary when a primary cancer is found in the organs other than the brain and symptoms of cerebral metastasis like convulsion are observed, cerebral metastasis can be negated if the electroencephalogram is slightly abnormal and show neither side difference nor localization.

In chronic nephritis with slight functional disturbance, the electroencephalogram is almost normal. Contracted kidney with severe functional disturbance show a slight abnormal electroencephalogram. Since uremia, even when there is neither disturbance of consciousness nor convulsion, show a serious abnormal electroencephalogram, electroencephalogram is of use in deciding the prognosis.

Diabetes mellitus with marked elevation of blood level does not always show an abnormal electroencephalogram, but it is abnormal when complicated by severe arteriosclerosis.

In Basedow's disease, the electroencephalogram shows scattering theta waves, paroxysmal dysrhythmia and alpha wave of abnormally high voltage, but they are not epileptic signs.

The mechanism of the cause of these signs is unknown, however, these including the paroxysmal dysrhythmia in the tumor of the pituitary gland are important and interesting in diagnosing and differentiating the diseases of the internal glands.

44. The Experimental Absorption of an Organic Phosphorous Compounds (Parathion) into the Skin of the Living Rabbit.

Toshio ISHII

(Dept. Dermatology—G. Harada)

A study of percutaneous absorption of anticholinesterase agent (parathion) was conducted, the original oil type (about 97%) and emulsion type (about 47%) applied on the skin surface for 4 hours.

The absorption index was applied inactivation of blood cholinesterase. Intravenous application of parathion was used as contrast.
Absorption degree, about 1/260 in the emulsion used, in the oil at least about 1/520~1/1040.

The maximum inactivation time of blood cholinesterase was 24 h. in oil type application, and 8 h. emulsion type. It seemed that the absorption time is prolonged in oil application.

45. Study on the Rabies Control, in Relation to Public Health.

Tadao SUZUKI, Hiroshi MANO and Kenji NAMIE

(Dept. Health, Aichi Prefecture)

I. Vital Survey of Registered Dog in Aichi Prefecture.

The author had at random taken from 18 villages and towns out of 3 district in Aichi prefecture and has investigated on real state of being of registration of dogs in order to smooth administration of rabies control.

The number of registered dog decreased in 90% of all from a year to the next, about 20% of the 80% of those dogs was registered, both of sex and age of dogs in decreasing rates between these years. It was found the increasing number of registered dogs depended on registering the number of dogs before last year.

II. A Study on Real State of Being of Happening Accident by Bite of Dog.

The author had studied causes of happening accident by those cases in Aichi prefecture while 4 years from 1954. Those accident was divided 2 causes, one was dog side and other was human side.

Therefore, the author has observed the prevention of those accidents as follows:

1. Practicing of complete registration of dog.
2. Raising of social moral of owners.

III. A Study on Sex Ratio of Registered Dogs in Aichi Prefecture.

As one of rabies control, program, becoming ownerless, especially, unchaining dogs are most very important programs. The author has studied on sex ratio of registered dog, in order to stand basic countermeasure, and keep balance of population density of home dogs, female selection was carried out in natural and it was found that the population structure of sex was going type retardation.

IV. Arrangement Method of Dog by Using Hole Sort Cards.

Managing rabies control, especially arrangement of registration of dog to use Hole Sort Cards was very efficient in order to be smooth in these cases.

46. Study on the Variation of Bacterial Flora in the Pre and Post-operative Gastric Cavity.

Toshikazu ISII

(Dept. Surgery, Juntendo Medical University)

Quantitative observations was made on the numerous variation of following 7 kinds of bacteria—Gram negative rods, Neisseria, Yeasts, Streptococcus, Lactobacillus, Veillonella and Fusobacterium—in the pre and post-operative gastric cavity in 10 cases of gastric cancer, gastric ulcer and duodenal ulcer.

Results were as follows:

1) In the cases of gastric cancer, the bacterial flora of pre-operative gastric cavity is almost same as oral bacterial flora of the patients. As a striking difference between both portions, however, there observed abnormal multiplication of yeasts in the gastric cavity as compared with oral cavity.

2) Owing to the low pH of pre-operative gastric juice in the cases of gastric ulcer and duodenal ulcer, Gram negative bacteria namely Gram negative rods, Neisseria, Veillonella, and Fusobacterium were not detected. But in many cases, a considerable numbers of Yeasts were observed and Streptococcus counts were found to be proportional to rise of pH when the acidity of gastric juice was above pH 2.5.

3) Low acidity following operation results in a striking increase in Gram negative rods, Yeasts, Streptococcus, Veillonella and Fusobacterium in a short period, and after 24 or 48 hours these bacterial numbers developed in abnormal counts. Concerning the Neisseria and Lactobacillus, no precise counts could not be determined owing to the contamination of Gram negative rods and Yeasts existing in gastric juice simultaneously.

4) Gram negative rods detected from the gastric cavity were identified as Alcaligenes, pseudomonas, Escherichia, Aerobacter and Paracolobacterium. These bacteria were also detected from oral cavity and in many cases the same bacterial species were detected from oral and gastric cavity of a same patient. It could not be demonstrated the fact that bacterial flora of gastric cavity are resulted from the back-flowing of intestinal flora. From these observations, it might be concluded that the origin of Gram negative rods in the gastric juice is from oral cavity.

5) The critical pH's of gastric juice for growth of tested bacteria were as follows: Yeasts, 1.5; Streptococcus, 2.0-2.5; Gram negative rods,
Neisseria, Veillonella and Fusobacterium, 4.0-5.0.

6) The mechanism of existence and multiplication of tested bacteria in the gastric juice were discussed.

47. Gastric Juice as a Sole Source of Nutrient for Micro-organisms.

Tosiyuki ISII
(Dept. Surgery, Juntendo Medical Univ. — T. Fukudo)

The in vitro observations were made on the growth of Gram negative rods and Yeasts in gastric juice.

Results were as follows:

1) Both bacteria can multiply in gastric juice which is provided with no other nutrient substances and growth factors.

2) It has been shown that when the pH of gastric juice is above 4.4, the growth of Gram negative rods becomes remarkable and it tends to inhibit the growth of Yeasts. In this case, it is always accompanied with a rise of pH of gastric juice.

Inversely, when the pH of gastric juice is below 4.4, the growth of Yeasts becomes remarkable and the growth of Gram negative rods is inhibited owing to the low pH.

48. Etiological and Epidemiological Studies on Food Poisoning in Aichi Prefecture.

Tsutae SUZUKI
(Dept. Health, Aichi Prefecture)

Recently, the actual condition of food poisoning was made clear the meaning of those in Japan, but there are many etiological unaccountable cases taken 70 to 80% of all cases, such as the actual condition are big disadvantage of planing to prevention of food poisoning.

The author was attended to these state, in order to make clear up a fact, following studies were made.

The result from both of the investigation of actual state of food poisoning in Aichi Prefecture and compare with all cases in Japan from 1952 to 1958 showed almost same tendency either the variation of occurrence by year, caused foods, or etiological materials.

Therefore, author to make suggest the get on the track to find the race of explanation of food poisoning in Japan by these actual investigation in Aichi Prefecture and result of suggestion to caused foods, method of diet, in each season, temperature, humidity, incubation, incidence rate and symptom were showed almost of unaccountable materials (stuffs) had similar with bacteriological poisoning, and most cases which over 10 hours of incubation period were quite suspicious to caused by bacteriologic, especially infection style of these.

The meaning of above mentioned was made that administration of health should have scientific support, the programs would be expectably more powerful advance also.

Based on the finding, the author obtained those new finding and to contribute for the public health.

49. Studies on the Air-sterilization
—Ultraviolet Light Radiation, Glycolization and Dust Control—

Haruhisa FUJIMOTO
(Dept. Veterinary Public Health, National Inst. of Public Health— T. Matsui)

Under laboratory conditions, bacteria suspended in the small chamber as finely dispersed particle can be rapidly inactivated by exposure to adequate concentration of glycol vapor or ultraviolet light radiation, but spores of B. subtilis and Aspergirus are free from glycol vapor.

The method for reducing bacteria floating in air have been investigated:

1) Suppression of „Dust”, particularly through application of oil emulsions to floors, wooden instruments and cotton cloths.

2) Inactivation of bacteria in air by ultraviolet radiation.

3) Inactivation of bacteria by glycol vapors.

Under practical application in aseptic room, two of these control measures (1) or (2) can be used as air disinfecting method.

Bacterial counts are lower in ultraviolet radiation with dust control room than unoiled or glycol vapor saturated room.

Oiling of dust source, without radiation or glycolization of air, reduce the air floating bacteria. The use of glycol vapor is not so good bactericidal measure in high humidity area as in Japan.