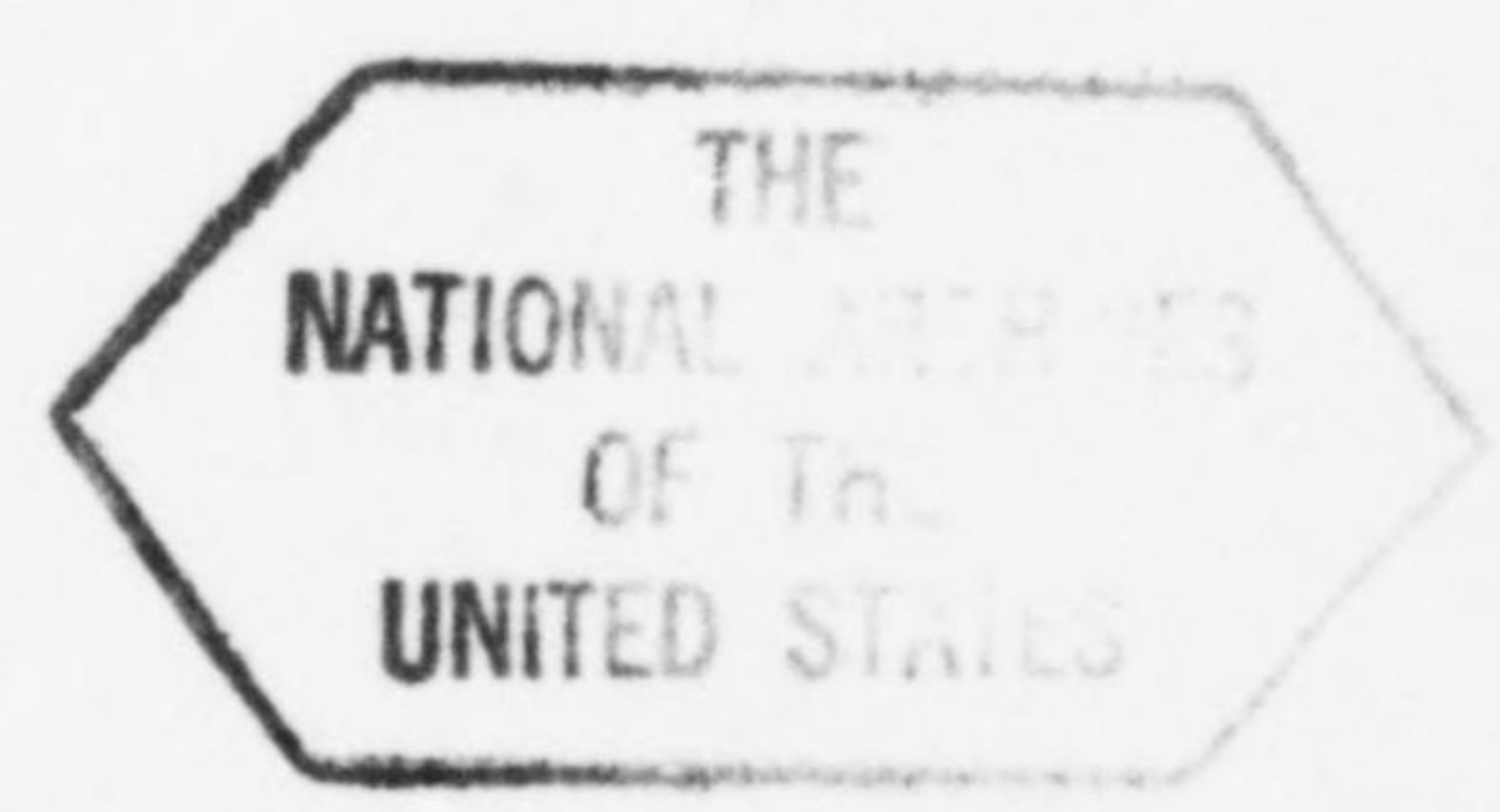


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WATER ANALYSIS AND INTERPRETATION

PUBLIC HEALTH AND WELFARE TECHNICAL BULLETIN

PH&W, GHQ, SCAP, APO 500

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This bulletin presents an explanation of standard procedures relating to water examination. Significant quantities of impurities found in water and the requirements for the measurement of a potable water are discussed.

I. GENERAL

A. All Public Health Officials should be able to interpret laboratory and field reports and records of water analyses and they should have some knowledge of the principles and techniques of the various tests. The water plant officials are required to make physical, chemical and bacteriological tests necessary for control of treatment processes and for providing adequate records of treatment efficiency. The Public Health Section (prefectural and health center) is responsible for performing any tests necessary for ascertaining the potability of water supplies. The Environmental Sanitary Inspector is particularly responsible for the supervision of water analyses to ascertain the following:

1. That the proper tests are performed with sufficient frequency.
2. That sample collection procedures are correct.
3. That all determinations are accurate and dependable.
4. That proper reports are made and adequate records maintained.

B. The above procedures may be conveniently considered in the following five classes:

1. Bacteriological tests to indicate indirectly the presence of pathogenic organisms or any impending threat of their presence.
2. Chemical analysis for the quantitative determination of any poisonous, injurious, or harmful chemical constituent, organic or inorganic.
3. Physical tests to indicate and measure certain physical properties or conditions.
4. Microscopic examinations for the identification and quantitative enumeration of objectionable tastes and odor-producing micro-organisms.

5. The sanitary field survey, for the purpose of providing a physical picture of the entire water cycle in relation to potential sources of pollution.

It is only upon the entire evaluation of all five major examinations rather than upon the basis of any one specific procedure or test, that the quality of water for primary uses can be judged. However, the complete five evaluations are only recommended for advance planning of the necessary treatment facilities of a water supply, specific water problems, or in the case of a serious outbreak of a suspected water-borne disease. All five tests are not routine tests but each has its purpose in obtaining, providing, and maintaining a potable water supply. Usually the chemical content of water at its source remains nearly the same over a period of years. After the chemical content of water is determined to ascertain quality and recommend treatment designs, it is considered sufficient to complete chemical tests every six months for surveillance. Physical tests are usually completed with chemical examinations and when problems occasionally arise from water odors. Microscopic tests determine those microorganisms responsible for certain tastes and odors in water.

Actually, the bacteriological characteristics have come to be recognized generally as of most value in the sanitary examination of water supplies. They are also considered as the most important from the standpoint of public health. Bacterial tests, determining the presence of contamination indicators, are more indicative than chemical analysis. Standard water laboratory practice consider bacteriological tests, as recommended, routine procedures to assure a criteria of pollution or of water safety. The sanitary survey will depend upon reports of unpotable water from the various tests, as well as determining the physical or ground conditions existing prior to the use of any water source.

It is desirable that a person who makes the field investigation of the water supply also collect the samples for bacteriological analysis and interpret the analytical results. Special precautions are necessary in collecting the samples, and training and experience are also necessary in interpreting and evaluating the results. Therefore, the assistance of the prefectural or health center officials should be requested if there is any question concerning the safety of water.

Water for drinking and culinary purposes must be free from pathogenic bacteria, protozoa, and other disease producing organisms, as well as from physiologically harmful chemical or mineral substances. Clearness, softness, freedom from objectionable taste, odor, and low temperature are desired.

II. PRELIMINARY PROCEDURES

A. Sample Collection: Proper technique in sample collection is absolutely essential. Samples will be collected only by competently trained individuals. Some guiding principles are as follows:

1. Sampling taps should be selected providing representative samples. These will usually be in active parts of the water supply system.

2. Taps, especially for bacteriological specimens, should be easily identifiable, should be non-leaking, preferably with small orifices. They should be so located that the specimen can be obtained with ease, avoiding spattering.

3. Only bottles supplied by the laboratory will be used. Sterile 120 ml. bottles are recommended. When water which contains residual chlorine is to be tested the sample bottles should be prepared in advance, with approximately 0.02 to 0.05 gm. of Sodium Thiosulfate added prior to sterilization.

4. Bottles for bacteriological examination must be tightly stoppered, chemically clean, and preferably glass stoppered, covered with a hood of muslin or strong paper, then sterilized either by autoclaving at 15 lbs. pressure (120°C.) for one-half hour, or in dry at 160-170°C. for one hour. For chemical examination, chemically clean 3 or 4 liter bottles will be used.

5. Before collecting samples, the water should be run sufficiently long to flush out the pipe line providing representative samples. Samples for chemical examination should ordinarily be collected as near the source as is practicable; not from dead-end lines or lines having little circulation.

6. For bacteriological examination, the orifice of the tap should be flamed, the water then permitted to flow until a representative sample can be obtained, then collected in the special bottle which is filled to the shoulder (leaving some air space). The lip of the bottle will not be brought in contact with the tap, nor will the stopper be contaminated. The hood is replaced and secured with the fastener.

7. The date, time, and place of collection will be marked on each bottle, and the proper forms requesting laboratory examination will be completely and clearly filled out and accompany the specimen bottle.

8. Specimens should be taken to the laboratory immediately. They should be kept in a refrigerator as long as possible if delay in making analyses is unavoidable.

9. Complete or special chemical analyses will not be made frequently as a matter of routine, but only for the purpose of securing confirmatory evidence concerning pollution and for the purpose of detecting significant changes in mineral content.

10. Bacteriological examination of specimens of drinking water will be made at least once monthly as a routine measure, and more frequently when indicated or directed by health officials. For large water supplies several samples should be analyzed daily or as stated in "Standard Methods".

B. Residual Chlorine Test. It is required that all urban water supplies be adequately chlorinated. It will therefore be necessary that the residual chlorine test be performed frequently and accurately. Water plant operators should daily make residual chlorine tests in the water distribution system to

assure continuous chlorination and to check operation of chlorinating equipment.

When chlorine is added to water it is consumed by an unoxidized or inorganic matter present and the bactericidal efficiency thereafter depends upon several factors, such as the amount and nature of the residual chlorine (free or chloramine), pH, and the temperature of the water. Chlorinated water will also lose chlorine quite rapidly when exposed to direct or bright diffuse sunlight. It is therefore necessary to add sufficient chlorine to satisfy the demand of chlorine-consuming materials present, to allow for any quantity which might be lost, and still leave a measurable quantity of chlorine for a period of at least thirty (30) minutes for bactericidal action.

Experience has shown that if the quantity of chlorine added to water is sufficient to yield, after a ten (10) minute contact period, a residual concentration of one (1) part per million, a satisfactory bactericidal concentration will usually be maintained for at least thirty (30) minutes. The residual chlorine test, therefore, as the name implies includes the time factor of contact period between the time of chlorine dosage and the time of testing. Preliminary reports of chlorine residual tests should include statements such as; 10 minutes residual, 30 minutes, or 1-hour residual.

While not specific for chlorine, the orthotolidine test is the most reliable simple quantitative test for measuring small quantities of chlorine in water. The reagent is a colorless 0.1% solution of orthotolidine in approximately 1.2 normal hydrochloric acid and is prepared as follows:

1. Weigh out 1 gram of orthotolidine crystals, transfer to a 6-inch mortar and add 5 ml. "20 per cent" hydrochloric acid (Prepared by adding 100 ml. of concentrated hydrochloric acid, specific gravity 1.18 - 1.19 to 400 ml. of distilled water).
2. Grind to a thin paste and add 150 to 200 ml. of distilled water. The orthotolidine goes into solution immediately.
3. Transfer to 1000 ml. graduate and make up to 505 ml. with distilled water.
4. Make up to the 1000 ml. mark by adding the balance (495 ml.) of the 20 percent hydrochloric acid.

This reagent is commonly used in the proportion of 1 ml. of the reagent to 100 ml. of the sample. This is sufficient to give the correct color reaction in samples containing not more than approximately 3.3 ppm chlorine and approximately 500 ppm alkalinity. For higher concentration of chlorine a higher proportion of orthotolidine is required, and for samples having high alkalinity more of the acid reagent is needed in order to reduce the pH value to below 1.8.

When the ratio by weight of orthotolidine to chlorine in a sample is equal to or exceeds 3 to 1, and if sufficient acid is present to lower the pH value of the sample to below 1.8, the color produced is yellow, and the depth of yellow color (shading into brown) is proportional to the concentration of chlorine in the sample. When the ratio is approximately 2 to 1 an orange red color is produced, and when the ratio is 1 to 1 or less a cherry red color is produced -- the depth of these colors being proportional to actual concentration of orthotolidine and chlorine involved.

One ml. of standard orthotolidine solution contains 1 milligram of orthotolidine or sufficient to form solely a yellow color with 0.33 milligrams of chlorine. This means that if 1 ml. of orthotolidine solution is added to 100 samples (not too highly alkaline) containing from 0.1 to 3.3 ppm chlorine, yellow colors will form with increasing depth of color in proportion to the concentration of chlorine. At concentrations up to approximately 1.5 ppm the yellow color will have a pale green tint, but at concentrations above approximately 1.5 and below 3.3 ppm the samples have a true yellow color becoming moderately deep at 2.0 ppm and only slightly deeper at 3.0 ppm. If one ml. of orthotolidine solution is added to 100 ml. samples containing in excess of approximately 3.5 ppm chlorine the color developed will be orange to orange red to cherry red, with the red color becoming quite pronounced at 5 to 6 ppm.

Unfortunately the orthotolidine reagent is not a specified test for chlorine. The reaction is an oxidation process and certain other materials, sometimes found in water, will produce similar reactions. As small quantities as 0.3 ppm of ferric iron, 0.01 ppm of manganic manganese, or 0.3 ppm of nitrite nitrogen will give a false indication of the presence of chlorine. The reaction of ferric iron and nitrite nitrogen on orthotolidine is quite slow as compared with the reaction of chlorine, and the color produced is a brownish yellow instead of the typical clear deep yellow produced by chlorine. If samples being tested are placed in the dark for the five minute period for color development iron and nitrites will not produce enough color to interfere seriously with the residual chlorine test. The reaction of manganese is almost identical with that of chlorine on orthotolidine. The color development is rapid and as is the case with the chlorine reaches maximum development within 5 minutes, even in the dark.

It is advisable always to perform a blank orthotolidine test before chlorination to detect the presence of these interfering substances. Manganous manganese or ferrous iron may however be oxidized to the -ic form on chlorination. When suspected, a chlorinated sample should be tested before and after thorough aeration or boiling. The difference in values is due to the residual chlorine.

When a water supply is suspected of containing interfering quantities of iron, manganese, or nitrites, the orthotolidine test should be supplemented by the neutral starch-potassium-iodine test. Residual chlorine concentrations greater than 0.1 to 0.2 ppm will produce a positive blue color when a few milliliters of fresh neutral starch solution (0.3 to 0.5% solution) and a few milliliters of neutral potassium iodide solution (5 to 10% aqueous or alcoholic solution) are added to the sample. The ordinary interfering quantities of iron,

manganese, and nitrites will not produce the blue color with starch-potassium iodide unless the pH value of the sample is reduced to below 5.0.

III. Bacteriological Tests. - Tests for bacteria of the Coli-Aerogenes Group.

No procedure has been developed for detecting minimum infectious numbers of typhoid or other intestinal disease bacteria in water. It has, however, been observed that almost invariably when water contains infectious quantities of intestinal disease organisms, measurable numbers of colon bacilli are present. Bacteria of the coli-form group (including both B. coli and the A aerogenes, referred to as the coli-aerogenes group) have therefore been chosen as indicator organisms for bacteriological examination of water.

The coli-aerogenes group includes all aerobic and facultative anaerobic gram-negative, nonspore-forming bacilli, which ferment lactose with gas formation. Micro-organisms of this group are not pathogenic, and are not necessarily harmful to the water, but are considered as evidence of fecal contamination, and the potential presence of pathogenic fecal organisms of dysentery-typhoid-Salmonella or Cholera groups which are not so readily detected in routine tests.

The standard procedure for carrying out the test for the presence of bacteria of the coli-aerogenes group on presumable potable water samples includes the following steps:

A. The Presumptive Test. Inoculate a series of lactose broth Durham fermentation tubes with graduated quantities of the water, but not more than 10 ml. in a tube (10 ml., 1.0 ml., 0.1 ml., etc.). Usually 5-10 ml. samples are planted and 1 - 1 ml., and 1 - 0.1 ml. for a single sample to be tested. The quantity of the medium must be at least twice that of the water. Standard sterile lactose broth is used. Incubate these tubes at 37 degrees centigrade for 48 hours. Examine them at 24 hours and 48 hours and record the formation of gas in the small inverted vials.

1. The formation within 24 hours of gas in the inverted vial constitutes a POSITIVE Presumptive Test.

2. If no gas is formed in 24 hours but is formed in 48 hours, the test is doubtful and must be confirmed.

3. If no gas formation occurs within 48 hours this constitutes a NEGATIVE Presumptive Test.

Very few bacteria other than those of the coli-aerogenes group occurring in water will ferment lactose broth within twenty-four hours, but several non-significant bacteria, particularly chlorine-resistant spore-forming bacteria may ferment lactose within 48 hours.

B. The Confirmed Test. Make two or more Endo or Eosinmethylene Blue agar plates from the tube which contains the smallest amount of water showing gas. Transfers should be made as soon as possible after the formation of gas. Incubate the plates at 35 - 37 degrees C. for 24 hours. If typical colonies have developed upon the plate within this period, the Confirmed Test may be considered POSITIVE. If no typical colonies develop in 24 hours, the test cannot yet be considered Negative definitely. In such cases the test should be carried on to completion. (Part C)

An alternate CONFIRMED test can be made using a liquid medium such as Brilliant Green Lactose Bile and Durham fermentation tubes as described for the Presumptive test above. The procedure is to transfer from a lactose broth tube showing gas the desired portion tube tested, by wire loop, sterile capillary tube or pipette, and add it to the fermentation tube containing B.G.I.B. Incubate these tubes for 48 hours at 35 - 37 degrees C. and observe the gas formed at the end of 24 and 48 hours.

1. The production of any gas in B.G.I.B. tubes in 24 hours is considered POSITIVE.

2. The development of no gas in 48 hours constitutes a NEGATIVE confirmed test.

C. The Completed Test. From the Endo or E.M.B. plates transfer two or more typical colonies, each to an agar slant and lactose broth fermentation tube. If no typical colonies have appeared after 24 hours incubate for another 24 hours. Then two or more colonies most likely to belong to the coliform group, whether typical or not, are transferred to agar slants and lactose broth fermentation tubes.

The inoculated tubes are incubated until the formation of gas or for 48 hours. The agar slants are incubated for 24 hours. Then at least one culture, corresponding to a tube which shows gas formation, is examined microscopically for identification.

The formation of gas in lactose broth and the demonstration of Gram-negative, non-sporing bacilli in the agar slants are COMPLETE proof of the presence of a member of the Coli-Aerogenes group.

The absence of gas formation or failure to demonstrate such bacilli constitutes a Negative test.

Bacteriological analyses on presumable potable water are almost invariably carried through the confirmed test, and usually through the completed test. An analysis of an individual sample showing a positive presumptive, positive, confirmed, or positive completed test on even one of the five 10-ml. portions tested indicates that the water supply at the point of collection at the time of collection was of unsatisfactory quality. Check samples should be taken at this point and adjustments made in water treatment, until bacteriological tests

repeatedly and consistently show the absence of coli-aerogenes organisms in five 10 ml. portions. A water supply receiving proper treatment will not show more than one (1) unsatisfactory sample out of each one hundred (100) samples tested, indicating not more than one (1) bacteria of the coli-aerogenes group per 5000 ml. of water (1/5000 ml. less than 1 per gallon of water.) Many public supplies have a record of two to five years with no more than one unsatisfactory sample out of all samples tested, including three to five samples tested daily.

A laboratory report of a bacteriological analysis of a sample of water should include a brief simple interpretation of the results of the test in terms of the probable potability of the water. The use of one of the following statements is recommended:

1. Potable bacteriologically. No evidence of contamination has been found.
2. Not potable bacteriologically. Tests reveal evidence of contamination.
3. Not potable bacteriologically. Colony count is too high; suggest re-examination.

D. Test for Total Number of Bacteria. The approximate number of bacteria present in a sample of water may be determined by applying the nutrient agar plate count, referred to as the "total colony count". The test includes the following steps: (1) Transferring a portion, usually 1 ml., of the water sample to a sterile Petri dish; (2) pouring melted sterile nutrient agar over the portion of water, mixing and permitting the agar to solidify; (3) incubation at 35°- 37°C for 24 hours; and (4) counting the number of bacterial colonies developed.

The actual number of bacteria per ml. in a sample of water will probably always be greater than the number of colonies which develop on an agar plate from one ml. All bacteria present may not grow, and a colony does not necessarily develop from single bacterium. The test, however, gives a fair indication of total bacterial contents of water and is an excellent control test to measure effectiveness of water treatment processes. The bacterial content of water is progressively reduced by the consecutive treatment processes; sedimentation, filtration, and chlorination. An adequately treated water supply will consistently show an agar plate colony count of lower than 5 per milliliter.

The test for total number of bacteria is of little or no value unless initiated within two or three hours after the samples are collected, or unless the samples are held at low refrigeration temperature. The bacterial content of samples is not altered seriously in twelve to twenty-hours if the temperature is maintained below 40°F. Results reported from delayed tests often lead to erroneous ideas of water quality. Water treatment may render a supply almost completely free of bacteria of the coli-aerogenes group, but does not effect complete sterilization. Soon after a sample is collected any residual chlorine

present is soon exhausted and bacterial multiplication starts. The bacterial content may rise to several thousands per milliliter within 24 hours and to millions per milliliter within 48 to 72 hours.

Frequently water supplies have been condemned solely on the basis of a high total bacterial count and no allowance given to the time between collection and testing.

Although the "total colony count" or "plate count" technique is discussed here, experiences by bacteriologists have found that total counts have so little significance in a water examination that they are being abandoned in favor of the more specific coliform tests. Another method is the value determined by the most probable number interpretation, as found explained in "Standard Methods".

When water samples for bacteriological examination are enroute to laboratories in excess of 24 hours time interval, the possibility as reported by the laboratory should be determined only on the basis of the coliform bacterial content.

The presence therefore of a high count may or may not be of sanitary significance, but the presence of Coli-aerogenes is always important.

Frequently, the bacteriological examination of a sample of water collected prior to the disinfection of a well which has been recently constructed or repaired will show contamination. This is usually because surface contamination is carried into the ground water or well during construction or repair and does not mean that the ground water was contaminated before the well was constructed or repaired. If a well is properly located and constructed the water usually will be bacteriologically satisfactory after the well has been completed and disinfected. Samples of newly developed wells or wells which have been repaired should not be taken for bacteriological analysis until after completion and disinfection of the well.

IV. PHYSICAL CHARACTERISTICS

A. Turbidity

The turbidity or cloudiness of water is due to the presence of suspended matter which obstructs the passage of light through the water. Generally speaking, the degree of turbidity is proportional to the quantity of suspended material, but the size of the particles has an important bearing on the water's behavior during treatment. Coarse turbidity producing particles may settle rapidly, while the fine material may remain suspended for extremely long periods.

Turbidity producing materials usually are not toxic. But the more turbid the water, the higher the chlorine demand and the higher the total bacterial count are likely to be.

Turbidity in water is measured by direct or indirect photometric comparison of a sample with standardized suspensions of Fuller's Earth or finely divided silica. Water having a turbidity of 5 is perceptibly cloudy in a drinking glass, and a turbidity of 20 is definitely objectionable. Turbidity measurements serve as an index of sedimentation and filtration efficiency. Properly executed coagulation, sedimentation and filtration processes will deliver a finished water having a turbidity of less than 5.

In various areas it may be necessary to use water having a turbidity as high as 100 with no other treatment than chlorination. This should be avoided if possible because it is difficult to render such water absolutely safe by chlorination alone and the water is almost certain to have an objectionable taste.

With adequate coagulation, sedimentation, filtration, and chlorination facilities it is possible to convert a highly turbid water (turbidity of 1000 to 10,000) to a crystal clear safe water having only slightly objectionable taste.

B. Color

True color in water originates in the organic matter leaching from swamps and forest-covered areas on watersheds. Sometimes it may be due to pollution from industrial sources. The color of water in itself is harmless, but its presence detracts from the physical appearance of the water and so may affect community complaints. It is not a serious problem from the health viewpoint.

Color in water is measured by direct or indirect colorimetric comparison with standardized platinum-cobalt solutions. A color of 10 is equivalent to the color produced by 10 milligrams of platinum per liter. "Apparent color" in water is that produced by both suspended and dissolved materials, and "true color" is produced only by dissolved materials. "True color", usually produced by dissolved organic matter and colloidal iron, is not particularly objectionable as color unless the color value exceeds approximately 20, but the color producing materials either produce objectionable tastes or are associated with taste producing materials. Natural water having "true color" in the range of 100 or greater should be avoided if possible.

C. Total Solids

The total amount of solids in water is measured by evaporating a measured portion of a sample, and weighing the residue after drying at 103°C. for one hour. A determination on a carefully filtered or centrifuged portion of a sample gives the total dissolved solids. The difference between the total solids and the dissolved solids is reported as total suspended solids. Unless the turbidity of a sample exceeds 10 it is not practicable to make both determinations.

Water containing total solids in excess of approximately 1000 ppm has a perceptible mineralized or salty taste which may be objectionable to individuals accustomed to water of very low mineral content. It may be necessary in various

areas to use water containing more than 1000 ppm mineral matter but no adverse physiological difficulties will result unless a major portion of the solids are sulfate salts.

In routine analysis of water from the same source, such determinations are of value in the control of the operation of a water purification plant.

V. CHEMICAL TESTS

A. Alkalinity, Acidity and pH. Hydroxides, carbonates, and bicarbonates, which tend to hold the pH value of water above 7.0 are the common alkaline materials found in water. Mineral acids and carbon dioxide, which tend to keep the pH value below 7.0, are the common acid materials in water. Alkalinity and acidity are measured by titrating samples with standard acids or bases, using methyl orange and phenolphthalein as end-point indicators. Results are commonly reported as parts per million of equivalent calcium carbonate. That is, an analysis report of 150 ppm of bicarbonate alkalinity means that there is a quantity of bicarbonate iron present in the sample that is chemically equivalent of 150 ppm of calcium carbonate. A report of 100 ppm of carbon dioxide acidity means a quantity of carbon dioxide equivalent of 100 ppm of calcium carbonate. A total alkalinity of 300 ppm usually mostly bicarbonate, means a total quantity of the alkaline materials equivalent to 300 ppm of calcium carbonate. Carbon dioxide, however, is sometimes reported as ppm of carbon dioxide.

Hydroxide and carbonate alkalinity seldom occur except in water which has been subjected to lime or lime-soda-ash softening treatment. The presence of a measurable quantity of hydroxide alkalinity indicates that an excessive quantity of lime has been added. The amount of carbonate alkalinity in a lime or lime-soda-ash softened water depends upon the nature and quantity of hardness and alkaline materials originally in the water, and upon the degree of softening effected. In any case carbonate alkalinity seldom exceeds 100 ppm.

Bicarbonate alkalinity occurs in practically all natural waters, ranging from as small quantities as 5 or 10 ppm alkalinity to as much as 1000 to 1200 ppm in waters that are often used for human consumption.

The significant limits of alkalinity in water are less than approximately 50 ppm and more than approximately 500 ppm. A highly turbid natural water containing less than 50 ppm of alkalinity usually responds slowly and incompletely to coagulation treatment. If a heavy dose of coagulant is required for clarification it is necessary to add lime or soda ash to assure that there is sufficient alkalinity for the reaction with the acidic coagulant.

Water containing 500 ppm of alkalinity has a distinct "soda" taste. At a content of 1000 ppm the taste is particularly objectionable to many individuals, but even at this concentration of alkalinity it would produce only a very slight physiological reaction. An alkalinity of 1000 ppm is equivalent to approximately 1 teaspoon of soda per gallon.

Mineral acidity seldom occurs in natural water. Its presence indicates pollution of water with acid industrial wastes. Carbon dioxide is present in varying quantities in most natural waters. It has no significance other than its corrosive action. As small a quantity as 2 to 3 ppm of carbon dioxide in a very soft water may render it quite corrosive, while 10 to 15 ppm of carbon dioxide may not be objectionable in a hard water.

The pH value of a water indicates the degree of acidity or alkalinity but tells little of quantities present. Certain pH values and ranges tell much of the types of alkalinity and acidity materials present in water:

1. Above the pH value of approximately 4.2 (methyl orange end-point) water contains no measurable quantity of mineral acidity; below this point the mineral acid and carbon dioxide content may be very high.
2. In the pH range of 4.2 to 8.3, of the common acid and alkaline materials, only carbon dioxide and bicarbonate are present in measurable quantities.
3. Above the pH value of 8.4 (phenolphthalein end-point) no measurable quantity of carbon dioxide is present in water.
4. Below the pH value of 10.0 a measurable quantity of hydroxide seldom occurs.
5. In the pH range of 8.4 to 10.0 carbonates and bicarbonates may be present but measurable quantities of both bicarbonates and hydroxides cannot be present together.

Knowledge and control of pH are useful to minimize the amount of chemicals needed in water purification, to increase the efficiency of bacterial removal, and to prevent corrosion.

B. Chloride. Chloride comes mainly from dissolved mineral chloride or harmless inorganic substances. A chloride content of 250 ppm gives to a water a perceptibly salty taste, but the taste does not become particularly objectionable unless the chloride content exceeds 600 to 700 ppm. Water having a salt content of 500 to 800 ppm (equivalent to 700 to 800 ppm of sodium chloride) might be advantageous to use for people in tropical areas or during extremely warm weather. A chloride content of 600 to 700 ppm is equivalent to the amount of sodium chloride (0.1%) recommended to be added to ordinary water as an aid in maintaining the proper salt content of body fluids of laborers engaged in activities producing heavy perspiration and resultant serious loss of salt.

The chloride test is precise and may be performed rapidly and reliably. It is therefore often used as an indicator test for changes in mineral content. Surface water, particularly streams, may have frequent and considerable changes in salt content, and such changes may or may not be of significance. Wells and springs, however, should have a uniform chloride content. If an appreciable change in chloride content of a well or spring occurs it is probably due to

entrance surface water, or due to "over-pumping" or to defective well casing resulting in encroachment of water from undesirable water strata.

High chlorides indicate a possible pollution with sewage, particularly if the normal chloride is known. Urine contains about 6000 ppm of chlorides. Normal sea water has approximately 34,000 ppm of salt.

C. Sulphate. Water containing approximately 250 ppm of sulfate has a perceptible "Epsom Salts" taste, and may produce considerable temporary physical discomfort for individuals not accustomed to drinking water of high sulfate content. A sulfate iron content of 250 ppm is equivalent to one teaspoon of Epsom Salts, or Glauber's Salt per gallon of water. Water containing in excess of 500 ppm sulfate should be avoided if possible.

Calcium sulphate or gypsum causes hardness in water as it is more soluble in cold water than in hot. It separates from the water on boilers and forms scale on the boiler tubes.

D. Hardness. Most of the hardness in water is produced by calcium and magnesium salts. The total hardness of water can be determined approximately by titrating samples with standard soap solution. Total hardness is reported as ppm of equivalent calcium carbonate.

Hardness in water has no physiological significance but is objectionable because of its soap consuming and boiler incrusting properties. Hardness does not become objectionable unless the total hardness exceeds approximately 100 ppm. In various areas it may be necessary to use water having a hardness of several hundreds ppm but the softest available supply should be selected. Hardness above 300 ppm may be of considerable sanitary significance, because of the serious interference with effective use of soap in laundry, bathing, cooking, and washing facilities.

E. Iron and Manganese. A common and troublesome impurity found in deep-well water is dissolved iron in the form of ferrous bicarbonate. As soon as water containing this impurity is exposed to air, oxygen changes the iron into insoluble oxides which give the water a rust color and cause stains. The fine red particles settle out as a rusty sediment.

Iron in water in excess of approximately 0.3 to 0.5 ppm and manganese in excess of 0.1 to 0.2 ppm are objectionable for the following reasons:

1. Water will have an "inkish" sweet taste becoming quite objectionable when the iron content is as high as 0.3 - 0.5 ppm.
2. The taste of coffee and tea made with the water is seriously impaired.
3. Plumbing fixtures and laundry are objectionably stained.

4. Serious interference with the orthotolidine test for residual chlorine may occur. As small a quantity as 0.01 ppm of manganese will produce a measurable color with orthotolidine.

5. Iron in the process water is most objectionable in certain industries, notably in the textile trades and in paper making.

F. Nitrite. Nitrites in water usually occur through bacterial oxidation of nitrogenous organic matter or bacterial reduction of nitrates. Their presence, therefore, indicates bacterial growth in water. As small a quantity as 0.001 ppm nitrite nitrogen may be of sanitary significance. An adequately treated and chlorinated water will seldom has this quantity. Nitrites in excess of approximately 0.3 ppm nitrite nitrogen may give a false positive test for residual chlorine when the orthotolidine test is used, particularly when the test is being made by an inexperienced individual. This interference with the residual chlorine test is often encountered when inadequate treatment is being applied to heavily polluted water or swimming pool water, or when the test is being used in connection with chlorination of sewage treatment plant effluents.

G. Nitrate. Since nitrates are produced by oxidation of nitrogenous organic matter, their presence in water may be of sanitary significance. The variation in the quantity of nitrate in a water (particularly a ground-water) and not the actual quantity is a significant factor. If the quantity is constant the nitrate is probably coming from the water bearing stratum which may have been formed millions of years before. A variable nitrate content in a ground water is an indication of fairly recent surface pollution.

H. Fluoride. Fluorine is sometimes found in water as fluorides. If present in sufficient amounts, over 1.5 parts per million of fluorine, it causes an incurable injury to teeth known as "mottled enamel" which is very disfiguring to the teeth in these cases where fluoride water has been consumed. The injury is done during the age period from birth to nine years, while calcification of the permanent teeth is in process. No harm is apparently done after that age.

Although a fluoride content of over 1.5 ppm has been found to be detrimental, less than that amount appears to provide protection against dental caries or tooth decay. Inspections of teeth in areas where the fluoride content is naturally 1.0 to 1.5 parts per million show 60% or less dental caries than where the water is fluoride-free. Several ten year studies and other experiments are in progress to increase knowledge of fluoride application.

I. Other Chemical Impurities. Water should not contain an excessive amount of soluble mineral substances, nor excessive amounts of any chemicals employed in treatment. Various amounts of the following chemical substances will constitute grounds for rejection of the supply: lead, arsenic, selenium, vanadium, boron, hexavalent chromium, copper, magnesium, zinc, and phenolic compounds. Ordinarily analysis for these substances need be made only semiannually. If, however, there is some presumption of unfitness because of these elements, periodic determination for the element in question should be made more frequently. Where experience, examination, and available evidence indicate that such

substances are not present or likely to be present in the water supplies involved, semiannual examinations are not necessary, unless requested by health authorities.

J. Interpretation of Results of Chemical Analysis. It is impossible to determine the quality of a water from a chemical analysis alone. If chlorides, ammonia, and nitrates were due only to the decomposition of organic matter, water analysis would become an exact means of determining the degree of contamination. But since these various substances usually are not dangerous in themselves, and may be found to be present in a potable water in varying quantities, knowledge of the origin of the water is important in interpreting analyses.

From the public health standpoint the presence of materials which cause a high chlorine demand, which give rise to chlorinous tastes, which make the water difficult to treat, is important. Again it is emphasized that periodic chlorine residual tests throughout the distribution system of a water supply be coordinated by the health center inspectors and the water plant operators to maintain daily surveillance of actual operations and conditions.

Nitrites normally are present in very small amounts or are absent, because nitrites are transitory compounds that are soon converted into Nitrates. The results of the Nitrogen tests, when used collectively, help to show the possible presence of contaminating substances and the probable length of time they have been present in the water. The relative amounts, rather than the actual amounts of the nitrogen compounds indicate the state of pollution. If the organic matter is fresh, nitrites will not have formed; if it is old the nitrites will have turned into nitrates.

In general when a chemical analysis of water shows the presence of large amounts of chlorides, ammonia, nitrites or nitrates, pollution with sewage should be suspected. An examination of the water source should then be carefully made to determine the cause of the trouble, the suitability for treatment, and the type of treatment necessary.

VI. SIGNIFICANT QUANTITIES.

Comparison of American and Japanese maximum allowances for presumably potable water are listed below. These significant quantities are not standards. They are merely guides or rather indicators which are desirable, within limits or less, for a recommended quality of water.

TEST	AMERICAN	JAPANESE
Residual chlorine	0.05 - 0.1 1.0 - 2.0 (chloramines)	0.1 - 0.2 **
Bacteriological:		
Coli-aerogenes group	Gas formation in 10% of tubes planted	Gas formation in 10% of tubes planted
Total bacteria (See footnote 1)	5 per ml	100 per cc

TEST	AMERICAN	JAPANESE
Odor	none	none
Taste	not objectionable	not objectionable
Temperature	50 - 55° F.	**
Color	20	1
Turbidity	10	2
Total solids	500 ppm	500 ppm
Alkalinity	120 ppm	**
pH	Less than 7.0 and over 10.6	Less than 5.8 and over 8.0
Hardness	100 ppm	300 ppm
Chloride	250 ppm	30 ppm
Sulphate	250 ppm	**
Nitrite	0.001 ppm	trace
Nitrate	Any measurable variable quantity	10 ppm
(See footnote 2)		
Iron and Manganese (total)	0.3 ppm	0.3 ppm
Fluoride	1.5 ppm	1.5 ppm
Lead	0.1 ppm	0.1 ppm
Arsenic	0.05 ppm	0.05 ppm
Selenium	0.05 ppm	**
Hexavalent chromium	0.05 ppm	0.05 ppm
Copper	3.0 ppm	0.7 ppm
Magnesium	125.0 ppm	**
Zinc	15.0 ppm	1.0 ppm
Vanadium	1.0 ppm	**
Boron	1.0 ppm	**
Phenolic compounds	0.001 ppm	0.01 ppm
(See footnote 3)		

NOTE: Tests as Dissolved Oxygen, Biochemical Oxygen Demand and Oxygen Consumed are not recommended for routine tests in the maintenance of potable water supplies. However, they are recommended for stream pollution studies, control of purification processes, sewage treatment observations, and specific water problems.

1/ Recommended routine tests are the chlorine residual and the bacteriological tests. Sole reliance in determining the safety of water supplies cannot be placed on the results of infrequent bacteriological analysis; supplies which are potentially hazardous may be erroneously judged to be safe if contamination is not present at the time the samples are collected although there may be faulty location, construction, or operation of the supply. Periodic examinations will provide better control in such cases.

2/ Ordinarily a chemical analysis of a domestic supply will include: the physical tests, total hardness, alkalinity, pH, sulphates, and chlorides. Determination of nitrate nitrogen content should also be made. Iron, manganese, and fluoride may also be determined in some cases.

3/ Mineral analyses have no sanitary significance and are seldom made in routine work. Generally, they are of importance for determining the value of the water as a source for an industrial supply. However, due to their toxicity the above substances should be guarded against in the concentrations exceeding those limits cited.

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TB-PH-WEL 11 (Supplement)

CHILD WELFARE

PUBLIC HEALTH AND WELFARE TECHNICAL BULLETIN

August 1948

PHW, GHQ, SCAP

Section II. TB-PH-WEL No. 11, issued February 1948.

1. The attached paper, written by Mr. T. Namaye, presents a history of "Child Welfare Work in Japan" prior to 1919. The material was presented by Mr. Namaye at a conference on Child Welfare Standards, held in Washington, D.C., in May 1919 under the auspices of the U. S. Children's Bureau. Mr. T. Namaye has been for many years a leader in the development of social work in Japan. He is now retired but participates in the work of the Japan Social Work Association.

2. The material is being made available to Welfare Officers in Military Government since it presents a rather thorough survey of the early development of welfare work in Japan. The paper originally appeared in "Standards of Child Welfare", a Report of the Children's Bureau Conferences, May and June 1919. (U. S. Children's Bureau Publication No. 60, Washington, 1919) This Bulletin is supplementary to TB-PH-WEL No. 11, "Child Welfare Law".

CHILD WELFARE WORK IN JAPAN

MAY 1919

By TAKAYUKI NAMAYE

Department of Interior, Japan

Ellen Kay said that the Twentieth century was the century of the child. It is well said, for the world is beginning to realize the importance of children's welfare as never before. The protection of children is demanded not only from the consideration of humanity, but also from the self-evident truth that the future welfare of society and nation at large depends upon the healthy minds and bodies of the present children. It is the realization of this fact that has made the question of children's welfare a social and national problem from the latter half of the nineteenth century up to the present time. The fact that a bureau for children's welfare was organized in the American Labor Department about six years ago, although many States at that time had highly efficient organizations for children's welfare work, must have been due to the same consideration.

Japan is not behind other nations in appreciating the importance of children's welfare; but our means for promoting it are far inferior to those of America and the nations of Europe. Various circumstances, customs, and habits are responsible for the poor accommodations; but it is beyond the scope of this paper to discuss them. I shall confine myself chiefly to stating what regulations and provisions different departments have in regard to child welfare, and give explanations and personal views only occasionally. The departments that supervise children's welfare are the Department of Interior and the Department of Education, of Justice, and of Agriculture and Commerce. In discussing children's welfare work, it is convenient, therefore, to divide it as it is divided by the departments.

2. THE DEPARTMENT OF INTERIOR

a. Children's welfare work under the Department of Interior may be divided into two classes; namely, that which is regulated by law and that which is not.

b. Under the first class we have (1) the provisions of the Poor Law concerning the children of the poor, (2) The Foundling Act, and (3) the Reformatory Act.

(1) The Poor law was enacted in Japan in 1874, and the provision in question states that the forlorn children under thirteen years of age shall be given rice at the rate of three bushels and a half per year, and states also that the children who, although not strictly forlorn, have no relatives under seventy and above fifteen years of age, and are in distressing condition, shall receive the same amount of rice as that allowed to the forlorn children. It is hardly necessary to say that this method of relief is very primitive and the recipients necessarily very few. The expenses are to be paid by the national treasury; but as a matter of fact, the local public corporations supply the deficiency, which amounts to a considerable sum, although legal responsibility in the matter ends with the actual carrying out of the relief measures.

The latest statistics, which are those of 1917, will give a general idea about the amount of expenses and the number of recipients, as they have not increased or decreased to any great extent in late years.

Government expense	¥ 3,070
Local expense supplementary to the government expense	¥ 8,452
Local expense	<u>¥23,630</u>
 Total	 ¥35,152

The total number of children cared for was 1,203 of whom 213 were cared for at government expense and 990 at local expense or at local expense supplementary to government expense.

It should be noticed that, although the local public corporations are not required by law to provide money for the relief of the poor children, the actual financial assistance given by them to the relief work is comparatively large, as the government allowance is insufficient, its policy being to let them take the matter as much as possible into their own hands.

(2) The Foundling Act was passed in 1871, and is the oldest of the relief enactments now in force in Japan. The original act enjoined that three bushels and half of rice per year should be given to each foundling until he reached his fifteenth year; but in 1873 the age limit was reduced from fifteen to thirteen, and has remained so ever since.

The number of foundlings found in Japan in a year is very small compared to those found in any of the European countries within the same length of time, a fact of which Japan can be proud. For illustration the number of foundlings for several recent years may be given:

<u>Year</u>	<u>Foundlings</u>
1911	225
1912	274
1913	242
1914	188
1915	301
Average for the five years	246

In a country possessing a population of more than sixty millions, only two hundred and forty-six foundlings a year is indeed a very small proportion. One might suspect that this scarcity of foundlings may be due to the strangling of infants or to abortion; but now such crimes are seldom perpetrated in Japan, though in the past they seem to have been quite frequent. In 1916, the total number of the foundlings under the protection of this law was 1,733, and the total expense for them ¥66,826. The foundlings being so few, it is scarcely necessary to have separate asylums for them; so the public corporations put them under the care of orphan asylums.

It will be seen that the total number of the children under the protection of the Poor Law and the Foundling Act is about 2,930 for a year, and the aggregate sum of expenses for them only about ¥101,970. European and American specialists may, no doubt, wonder at these small figures; but I believe that the chief causes are the following facts:

- (a) The Japanese Poor Law is extremely retrenching.
- (b) Social consciousness of the necessity of supporting the poor has not yet dawned.
- (c) The spirit of mutual help is quite strong.
- (d) The strong solidarity of the family system.
- (e) The strictness of legal responsibility of parents to take care of their children.
- (f) The natural kindness of Japanese people towards children.
- (g) The comparatively small disparity between the rich and the poor.

(3) The Reformatory Act was first enacted in 1900 and was amended in 1908. The act requires each prefecture to establish reform schools to take in delinquent children under eighteen years of age, the upper age-limit of the inmate being twenty. The bulk of the expense is to be paid by the prefecture; but one-half of the expenses required in founding reform schools and one-sixth of running expenses are to be granted from the National treasury.

There are 54 local reform schools in Japan at present. They are divided into two kinds, public and private. The public reform schools are 28 in number, the private ones 26. The total number of inmates of all these reform schools at the end of 1917 was about 2,100, of which about 500 were taken in during that same year. They are mostly treated under the family system or under a system which is a combination of the family system and the dormitory system. One hundred and fifty is the largest number of inmates that a reform school has at present, and 9 or 10 is the smallest. Under the family system, about 10 inmates are taken in as a rule and the master and mistress or nurses look after them. They are given some elementary school lessons in the morning and some practical lessons in the afternoon, mostly in agriculture and manual labor. We have no accurate statistics as yet on the results of these efforts; but we can say that 70 percent of the inmates come out of the reform schools much improved. The total expense in 1917 was ¥246,886, of which ¥44,000 was Government subsidy.

Besides the local reform schools, there is one national reform school which was opened in March of this year. The number of inmates is limited to 100. A training school for officers and staffs for reform schools in general is to be established in this institution.

The special feature of our Reformatory Act is that the executive department, and not the judicial, is the one that places the delinquent children in the reform schools. This is because we believe that the purpose of placing delinquent children in reform schools is not to punish or imprison them but to educate and improve them, and to make them decent members of society. It is, therefore, the prefectural governor who issues the orders to be served upon those whom he thinks it to be advisable to put under the care of a reform school. This is a procedure which is seldom seen in other countries.

c. The reasons why there are only about 2,000 delinquent children in more than 50 reform schools are (1) the scarcity of delinquent children in Japan, and (2) the inadequacy of the Reformatory Act. The Government is contemplating a revision of the act to make it more effective.

d. Under welfare work not regulated by law, we have (1) orphan asylums, (2) day nurseries, (3) the Committee on Social Affairs for work on the Bureau of Local Affairs, (4) The Committee on Investigation of Health and Sanitation, and (5) the Lectures on Sanitation for Women.

(1) Orphan Asylums. - The origin of orphanages in Japan was more than ten centuries ago; but it is unnecessary to dwell upon its long and obscure history. I shall speak only of the orphanage work since the Restoration of 1868. The first orphan asylum built in Japan in the Meiji era was started by a French Catholic nun in 1874. This orphanage has been making great efforts for poor and orphan girls for the past 45 years and takes the first rank among the orphan asylums in Japan in the number of children taken in, which is over 4,100. Besides this, one of the best known asylums in Japan is the Okayama Orphan Asylum, which was started by the late Juji Ishii, who had been greatly inspired by George Muller. This is widely known as the model orphanage in Japan.

There are at present 136 orphan asylums with 6,500 inmates. Their aggregate expense for a year is about ¥420,000. Their properties are estimated at more than ¥2,000,000. They are, with very few exceptions, private enterprises founded by some benevolent person; and in financial matters they are always hard pressed because there are not enough of public orphan asylums to relieve the private ones of their burdens. It is true that the Department of Interior subsidizes, to some extent, such institutions as are doing excellent work, and each prefecture gives some financial aid to those that are within its jurisdiction, out of the interest on the common fund of ¥5,000,000, which was granted by the Imperial Household; and the money that comes from public corporations when they give the charge of foundlings to orphan asylums is of some help. But all these aids are far from being sufficient to enable orphanage workers to carry on their work as they wish.

There are now about 700 charitable institutions in Japan, and there are indications that they will increase year after year. It seems that Christianity is responsible for this stirring up of the public

conscience. There are more than 70 charitable institutions under the management of Christians, and 30 of these are for orphan children. But charitable institutions are not monopolized by Christians by any means. In fact, Buddhists have more than 80 of them under their management, and their institutions for orphan children also outnumber those conducted by Christians. It should be mentioned here as a tribute to praise to both Christians and Buddhists that, though they differ in their religion, they are working hand in hand for the cause of charity.

The unweaned orphans are mostly placed under the care of farmers' families and when they reach school age they are, as a rule, taken into the regular orphanage. In Japan, the farming population is very large as compared with the city population, and there is not much difficulty, therefore, in finding suitable families among farmers to whom to entrust these children, and the result has been excellent. Those who cannot be placed in families are taken into the regular orphan asylums where they are now mostly treated under the family system, though in the past they used to be treated under the dormitory system. The orphan asylum conducted under the family system have from ten to fifteen inmates with a nurse or a master and mistress to look after them.

(2) Day Nurseries. - The first day nursery in Japan was established by the Kobe Women's Public Service Association during the Russo-Japanese war. At that time when it was necessary to support the poor families of soldiers who went to the front by giving them some work, and to enable mothers with small children to work they hit upon the idea of the day nursery and immediately some hundred day nurseries sprang up in different parts of Japan; but soon after the war all except one or two closed. Lately, however, their necessity was felt again owing to the demands of the times, and as a matter of fact they are increasing rapidly in number compared with other charitable institutions. Almost all day nurseries in Japan are private establishments. They are divided into creche and infant schools. The former take both the unweaned and infants, the latter infants only. The four day nurseries managed by the War Memorial Day Nursery Association of Kobe, and the Samegahashi Infant School of Tokyo are among the best known in Japan. There are over fifty day nurseries now and over three thousand infants taken care of by them. The total expense is more than ¥50,000. In everyday nursery great care is taken about the health of the children.

In Japan there is very little settlement work; but in the day nurseries they have family meetings from time to time, and they even visit the poor families and encourage them to save money and give other advice.

In this way they are doing a sort of settlement work to the great benefit of the poor. Though the day nurseries have been only recently organized, their good work is already appreciated by the public.

(3) Committee on Social Affairs. - The Japanese Government, in view of the tendency of the times, deemed it advisable to make investigations about the social conditions, both at home and abroad, with the purpose of availing itself of the suggestions obtained from the investigations in coping with problems that may arise in the future, and organized a committee on social affairs, consisting of twenty members, partly selected high officials of the Government and partly experts who have special knowledge and experience on such matters. The committee makes investigations about such matters as are requested by the Minister of the Department of Interior, and makes reports giving its views on them. The scope of investigation is quite extensive. At the last year's meeting the subjects brought for discussion were the public market, the housing problem, the employment bureau, the adjustment of capital and labor, and others. The committee is to make a thorough investigation of children's welfare work in the near future with the purpose of aiding those institutions already in existence and of establishing new ones.

From time immemorial the Japanese have had the custom of ancestor worship and even now they attach a peculiar importance to the notion of "family", and children as future successors to the "family" are treated with great care. They are regarded literally as family treasures. A well-known old Japanese poem says:

Silver, gold and precious stone,
What are they in comparison
With a daughter and son?

Traveling through any part of Japan you will see images of Gods and Goddesses which are regarded as protectors of children. From this superstition also you can see how solicitous they are for children's welfare. At any rate, the birth rate is always on the increase, and Japan does not have to resort to a premium system for the encouragement of childbirth as in other countries. The following statistics show that not only does the birth rate exceed the death rate, but it is also steadily increasing every year — a phenomenon seldom seen in any other country.

Year	Birth Rate	Death Rate	Rate of Increase of Population per 1,000
1885	1,058,137	753,456	7.8
1895	1,335,125	876,837	10.9
1905	1,614,472	1,016,798	12.8
1910	1,737,674	1,037,016	13.4

The statistics for 1910 show that the number of births exceeded that of deaths by over 700,000.

But though we are very optimistic about the birth rate we are somewhat alarmed about the death rate of babes and infants, for it has been increasing in the past except in very recent years, as can be seen in the following statistics on the death rate of the unweaned less than one year old.

The following figures show the yearly average ratio of these deaths for every hundred births:

1886-1890.....	11.7
1891-1895.....	14.7
1896-1900.....	15.3
1901-1905.....	15.4
1906-1910.....	15.7
1912	15.4
1913	15.2

The slight decrease in the death rate as shown in the last two figures may be due to the efforts which the Government has been making of late years.

The average death rate per hundred children over one year and below five years of age is as follows:

Period	Age 1-2 Years	Age 2-5 Years	Age 0-5 Years
1889-1893.....	4.51.....	2.24.....	5.82
1894-1898.....	4.29.....	2.07.....	5.92
1899-1903.....	3.38.....	1.70.....	5.65
1904-1908.....	4.37.....	1.98.....	6.13

The above figures show that the death rate of children under five years of age has not materially decreased, but is still about twice as high as that of some European countries. It is a regrettable fact that notwithstanding this enormous death rate of children there are very few private enterprises to combat this problem. At present there is only one mothers' consultation society in Tokyo and another in Osaka. There are hospitals for children, the circuit hospitals, visiting nurses, and such organizations, which may be available in giving medical treatment to sick children, but these accommodations are but a few drops in a bucket. This state of things may look strange in a country which has been called by some "the paradise for children", but the fact is that the social consciousness has not been awakened to the actual state of affairs, the public at large having no knowledge of it.

(4) The Committee on Investigation of Health and Sanitation. - Two very promising organizations have been started lately to probe this problem, namely, the Committee on Investigation of Health and Sanitation and the Lectures on Sanitation for Women. The former, which was started by Imperial Decree in 1916, is under the supervision of the Department of Interior and at present has 36 members, part government officials, part non-official experts. The Vice Minister of the Department of Interior is the president of the committee. The work of the committee is divided into eight divisions, and one of them is the investigation of the health of infants, school children, and youth. The matter which has already been investigated and published is the death rate of children under five years for the

last ten years. Other matters now under investigation are the sickness of school children, physical development of babies, the health conditions in the day nurseries and orphan asylums, and the condition of about 20,000 sick infants in the pediatric departments of the medical school. The completion of statistics on these matters will facilitate in ascertaining the causes, whether this higher death rate is due to poor nutrition or to the mother's lack of knowledge in rearing children or to endemics. Then the committee will be in a position to devise some suitable means to check the widespread deaths and diseases.

(5) - The Lectures on Sanitation for Women. - In prefectures and public corporations in our country, lectures on Sanitation are held for women. Although these were first started scarcely ten years ago they are now held throughout most of the country. The aim of these lectures is to diffuse among women knowledge in the rearing and care of children. The regular meetings continue several days at a place and sometimes they have exhibitions of things which are of interest to the work, something like the Baby Week Movement.

It is possible that by these means, the death rate of infants in Japan will be reduced as low as in other countries.

2. THE DEPARTMENT OF EDUCATION

a. The Primary School Education

(1) History. - Compulsory education is the most important means of building up a healthy nation by inculcating a wholesome national spirit and diffusing general knowledge among the children of school age. All nations of Europe and America have adopted it long ago. In Japan it was in 1886 that compulsory education was adopted. The present school regulation requires six years' course of instruction and as a rule does not charge any school fee.

(2) Matriculation and Attendance. - Though it is only 30 years since school education became compulsory, schoolhouses have been built all over the country. The following table shows the percentages of matriculations and attendance from 1911 to 1915:

Year	Percentage of Matriculation	Percentage of Attendance
1911.....	98.23.....	92.47
1912.....	98.16.....	92.78
1913.....	98.26.....	93.36
1914.....	98.47.....	93.69
1915.....	98.61.....	94.25

(3) The Number of Schools and School Children.- The number of schools in 1914 was: public, 20,440; private, 136. In 1915 it was: public, 20,518; private, 150. The number of school children in 1914, 6,700,000; 1915, 6,900,000.

(4) Finances. - Expenses are paid by public corporations. They amounted in 1914 to ¥ 56,720,000 and in 1915 to ¥ 60,000,000. This rapid increase of expenditure is due to the fact that the population of Japan increases by 600,000 or 700,000 every year and consequently many new schoolhouses must be built. Such being the case, the burden of the self-governing communities becomes heavier yearly, and in some towns and villages the school expenses amount to one-half of their whole expenditure. Last year the Government decided to grant ten million yen annually to relieve the self-governing communities to some extent.

(5) Exemptions.- Children of school age afflicted with lunacy, idiocy, or serious illness may be excused from matriculation. Guardians too poor to send their children to school may postpone their matriculation. It is to be regretted that the nation and self-governing communities have no legal responsibility for educating these poor children. But the Government is contemplating making their education compulsory, though it is not known yet when this provision will be put in force. There are some public and private schools, however, which take in these poor children. So, in fact, this defect in our school regulations is not so bad as it appears. As these special schools have the double aspect of being institutions of education and of relief, they are under the joint supervision of the Department of Interior and the Department of Education.

(6) Institutions of Relief for the Defective and Destitute Children.- In 1917 there were 29 schools for the blind and dumb (both private and public); three schools for the deaf, and 38 schools for the blind. The number of children taken in by these institutions was 3,326. They are given four or six years of common education and practical training, in most cases free of charge. Some of these special schools have dormitories where the students can board with little expense. Most of the blind students become masseurs after their graduation; but as the deaf and dumb cannot easily earn a living, employment offices are established especially for their benefit. The total expense of these 70 institutions was ¥ 176,000 in 1916. The National Treasury, the self-governing communities, the educational associations, and some individual volunteers contribute to defray the expense.

In 1916 the number of the blind children of school age was 3,240; that of the dumb children of the same age, 6,039. These numbers are rather large in proportion to the number of the children taken in by these institutions for defective children. But as they are building new schools and enlarging some of the old ones, they will be able to take in a larger percentage in the future.

To come back to the education of the poor children, although the self-governing communities are not legally responsible for the education of the poor children whose matriculation is delayed for reasons stated before, some of them have voluntarily established

schools for the poor children. Besides these there are some conducted by individual benefactors. In 1915 there were 67 schools of this kind, of which 52 were day schools and 15 were night schools. The total number of the pupils in these schools was 14,176. The expenses for the same year amounted to about ¥ 142,000. Moreover, almost every town and village has societies for the protection of the children of school age. Textbooks and lunches are distributed by them among the poor children. In this way, the inadequacy of the school regulations is supplemented to some extent.

(7) The School Physicians.-- In 1898 an Imperial Decree was issued to the effect that all primary schools except those in small towns and villages having less than 5,000 inhabitants should hire physicians to improve their sanitary conditions, the physicians to be appointed by the local magistrates. Now most schools are too poor to hire private physicians exclusively attached to them -- only those in large cities can do that. Consequently they hire ordinary practitioners. Thus, nearly 57 per cent of the entire primary schools, that is, 15,300 out of 27,000, have their physicians. Those physicians inspect the sanitary conditions of the schools from time to time, and once a year they make physical examinations of all the pupils and report to the Department of Education and also to the guardian of the students.

The results of the physical examinations of the school children for ten years (1906-1915) show that their height, weight, and lung capacity are getting more satisfactory.

Although considerable efforts are thus being made for the improvement of the sanitary condition of schools, sometimes the improvement does not come up to the expectation, because most of the school physicians, being poorly paid, cannot give sufficient attention to the schools. Therefore, in the large cities the schools are trying to have their own physicians if possible. Under the present regulation the school physician does not examine the mental condition of the children, but something will have to be done to remedy this defect.

(8) The Central Organs. - For better supervision of the sanitation of schools, the Department of Education established the School Sanitary Office in the Department in 1915, and in addition to this organized the School Sanitary Association as the consulting organ of the Minister of Education, and also holds a lecture class in the Department for the benefit of the school physicians from all over the country. Apart from this supervision of the Department of Education some prefectures have their own supervisors.

b. The Supplementary Industrial Schools

(1) In Japan as elsewhere there are many graduates of primary schools who desire to engage in some industry. To meet this demand the Japanese Government issued the Industrial School Order, encouraging the establishment of such institutions as are necessary

to give proper training to these graduates. These institutions are technical, agricultural, commercial, mercantile, marine, and supplementary industrial schools. I shall speak here only of the last.

(2) The supplementary schools are divided into technical, agricultural, fisheries, commercial, and other schools. They matriculate primary school graduates and those who have an equivalent education. The length of the course and the number of study hours vary according to the season, locality, and the like; for instance, the supplementary schools are of very recent origin in Japan, but they are making rapid progress. Of these, the agricultural schools are most numerous, which is quite natural, Japan being essentially an agricultural country. The lessons taught in common throughout the various kinds of supplementary schools are morality, the vernacular, and arithmetic. Other lessons vary according to the kind of school.

(3) In 1916 the number of the public and private supplementary schools was 7,063 and that of the students 369,000. The following are the statistics for all kinds of supplementary schools for the same year:

	Public	Private	Total
Number of Schools.....	9,344	3,021	3,697
Number of Pupils.....	565,899	11,868	577,747
Expenditure.....	¥931,134 ...	Unknown....	Unknown

(4) The supplementary school education is not yet compulsory, but the wonderful growth of this kind of school in a short period shows that it is almost as good as compulsory, and it is believed that the Government will extend this course of instruction by two years and then require those who do not receive high school education to attend one of the supplementary schools.

c. The Religious Education

(1) Catholicism was introduced into Japan several hundred years ago; but Protestantism came in only at the beginning of the Meiji era (1868). In the fifty year of Meiji, that is in 1872, the first Sunday School was opened, but for some time the growth was very slow. About twelve years ago, however, Mr. Brown, general secretary of the World Sunday School Association, came to Japan and organized the National Sunday School Association of Japan, and from that time the Sunday School work has made a rapid progress, until in 1917 the number of Sunday Schools reached 2,473 and that of the Sunday School children 160,000.

The following table will show how rapidly the Sunday School work is growing:

Year	No. of Schools	No. of Attendants
1907.....	857.....	64,910
1912.....	1,588.....	106,599
1917.....	2,773.....	156,245

(2) Prominent men like Marquis Ikuma, Baron Shibusawa, and others were appointed as the promoting committee of the World Sunday School Association Convention, to be held in Japan in October of next year, and preparation for it is already on foot. The expenditure, it is said, will be ¥ 150,000. It is believed that the coming convention will bring a new epoch to the Sunday School work in Japan and will make a great contribution to the general education of the Japanese children.

(3) Sunday schools were at first all Christian institutions, but of late Buddhists also began to feel a need for them and established their own, and it should not be overlooked that they have made a remarkable progress with them.

(4) The Young Men's Association is an institution wherein the boys, who, though graduates of primary schools, cannot receive higher education, get together and learn about supplementary studies, industrial work, and citizenship. The management of the institution is left to the self-governing communities, the government only giving instructions on proper occasions. Most of these associations were organized after the Chino-Japanese War and again after the Russo-Japanese War. They had already done much good for social improvement, and in 1915, in view of the Great European War and for the future welfare of Japan, the Ministers of the Education and the Interior Departments gave joint instruction to the prefectural Governors for the improvement of the Young Men's Associations, which brought them under a system and made them doubly efficient.

(5) In most cases each city, town, and village constitutes a Y.M.A. district and has its headquarters; but within a district branches are established to facilitate the work and to bring the members into close touch. In some counties and prefectures they have headquarters to supervise Y.M.A. work within their districts. The age limit is not quite uniform throughout the country, but in most places twenty, and in some, twenty-five years of age is the limit. According to the last year's report of the Department of Interior there are 18,482 associations and 2,932,113 members.

(6) Among the various works carried on by the Y.M.A., the most general are the supplementary education, circulating library, keiro kai (veneration of aged people), temperance work, physical training, improvement of amusement, popular education, and the moral training of young men. Instruction is mostly given from time to time by lectures by school teachers, local officials, religious leaders and sometimes by business men.

(7) The expenses of the associations are paid: 1. out of money earned and contributed by the members of the associations; 2. by subsidies from the cities, towns, and villages; 3. by individual subscriptions; 4. by income from the capital; 5. the proceeds from cooperative enterprises of the associations. The total expenditure of all the associations in the country for 1916 was ¥ 736,750. Their property in the same year was estimated at ¥ 1,000,000.

(8) The aim of the Young Women's Association is practically the same as that of the Young Men's Association, namely, to make more efficient those girls and young women who are graduates of primary schools, but who cannot get higher education. The work of this association is naturally different from that of the Y.M.A. It includes domestic work, hygiene, rearing of children, cooking, sewing, family nursing, morality, and so on. The instruction is given by lectures of experts in these lines. These associations are all of very recent origin; but they already number 8,852 and have 1,049,652 members. The age limit of the membership varies from twenty to thirty years.

(9) One very noteworthy feature of these two organizations is that they sometimes have joint meetings. The occasions for these joint meetings are when they have school exhibits, pictures, lectures on moral culture, charitable work, and so forth. I say it is noteworthy because in Japan commingling of young men and women in this way is very rare, and those joint meetings, though humbly started, may if wisely conducted on a large scale have a great significance for the social welfare of Japan.

3. THE DEPARTMENT OF JUSTICE

a. Treatment of Juvenile Criminals

(1) The treatment of criminals, especially young criminals, is an important question for criminology. In 1907 the criminal code of Japan was revised and the age of discretion was fixed at 14. The Act says "the acts of persons under 14 years of age are not punishable". Young offenders above that age are punished by ordinary criminal law, there being no special laws for them.

(2) When a police officer apprehends a young offender, he takes him into a police station and there and then they examine him. If the offense is only slight they let him off with an admonition; and if it is not so slight or so serious they keep him in the house of detention for not more than 30 days; if it is serious they send him to the public procurator's office and the procurator examines the case and decides whether the offender should be prosecuted or not. The average number of young offenders who were subjected to judicial examination in five recent years was about 30,000; of these only 10,000 were prosecuted according to the regular law -- some of them were fined, some put in jail, and others imprisoned. The average number of those who were imprisoned during the period of the five years from 1913-1917 was 2,248. The statistics, however, reveal an annual decrease in the number of juvenile offenders in prison beginning with the year 1914, as shown in the accompanying table:

<u>Year</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
1913	2,156	183	2,339
1914	2,684	189	2,873
1915	2,092	172	2,264
1916	2,021	163	2,184
1917	1,828	148	1,976

(3) The form of trial of young offenders is not uniform throughout the country, but in large cities like Tokyo, Osaka, and others, the courts have a juvenile department with a special judge. They usually segregate the young offenders from adult criminals and have a separate room for them. The trials are not open to the public. In these matters the spirit and the method closely resemble those of the juvenile courts in America and Europe. But as there are no special laws for children they are judged according to ordinary criminal law.

(4) The prison regulations provide that the offenders under 18 years of age who are subjected to more than two months of penal servitude may be put into special prisons or special departments of regular prisons, and that they be kept in them until they reach their twentieth year. Thus the juvenile offenders are treated in a different way from that in which ordinary criminals are treated, the object being their protection and reformation more than punishment. Moreover, they are obliged to attend school a given number of hours every day, and even the labor they are required to do is rather for their training than for supplementing the funds by which the prisons are maintained. At present there are nine such juvenile prisons in principal places of Japan, and several more will be established in the near future. In the treatment of juvenile offenders both the grade system and mark system have been adopted and the choice between them is left to each prison. Whether they use the grade system or the mark system, they keep each prisoner in a separate cell for the first three or four months of his imprisonment in entire seclusion from the outside world, and if he shows signs of improvement he is promoted to a higher grade and treatment becomes more lenient.

(5) The result of this treatment is shown in the accompanying table:

<u>Year</u>	<u>First Offenses</u>	<u>Second and Later Offenses</u>
1913	2,220	585
1914	1,903	470
1915	1,851	413
1916	1,787	397

Thus it may be seen that the number of offenses is decreasing every year, but the number of second and later offenses has not materially changed. The latter fact may be due partly to not imposing an indefinite sentence and partly to the lack of social sympathy with the discharged prisoner.

(6) It can easily be imagined that many of those who are set free without trial will repeat the offense if adequate protection is not given to them. Therefore whether the juvenile offenders are homeless or not, some further means of protection is absolutely necessary. In this regard we regret there is no probation system in Japan as yet. Not that there is nothing done in the way of their protection, for there are two homes for boys and one for girls in Tokyo. In those two places for boys they look after more than a thousand boys every year, and their work in seven cases out of ten is successful. There are more of these societies outside of Tokyo, but they are not so active in their work as those in Tokyo. It is to be hoped that many more such societies will be organized in the future to give adequate protection to the misguided youth.

b. The Children's Act

(1) Though various attempts have been made at devising means of prevention of juvenile crimes, they have not accomplished the desired results; but it has been thought that the establishment of juvenile courts would be best suited for the accomplishment of this object. The law investigating committee have been working at a bill for some years, and the bill is nearly completed. It is not time yet for its publication; but, generally speaking, it seeks to apply a sort of probation system to those under 18 years of age who have committed some criminal offense or are inclined to do so. What the bill seeks to accomplish is as follows:

- (a) To give admonitions from the court.
- (b) To obtain admonitions from the principal of the school.
- (c) To demand a written promise for repentance.
- (d) To hand delinquents over to some protector on certain conditions.
- (e) To place them under the care of some religious organization or protective society.
- (f) To place them under probation officers' care.
- (g) To send them to industrial schools.
- (h) To send them to reform schools.

(2) There are also features not seen in the laws of other countries, but on the whole the provisions are practically the same as the juvenile court regulations of America and of Europe. If the bill passes, after some amendments, it will do a great deal of good in the way of rectifying the defects of the present law.

4. THE DEPARTMENT OF AGRICULTURE AND COMMERCE

The development of factories in Japan is of very recent origin. In fact it is not fifty years old yet. Therefore the capitalists and factory owners of Japan have not had experience in the management of such enterprises. Before the introduction of the factory system,

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the various industries of Japan carried on their business by means of handicraft and home industry. In those days, when international trade was forbidden and the principal of "self-supply" had to be enforced, no great inconvenience was felt from those old-fashioned methods, and the handicraftsmen and those who were engaged in home industries dragged along in their work from morning till late at night in a most lax manner without any definite restriction of time. The relation of the employer and employee was, of course, that of master and servant. But when Commodore Perry came and broke the spell of a long dream, all of a sudden the policy of isolation was abandoned; international commerce was allowed, and in fact everything changed in a very short time. The social, political, and business conditions underwent a complete change and left no trace to remind us of former conditions. In the industrial circle also the factory work took the place of home industry and a great many operatives began to work with wonderful machinery and to have definite hours of work. But even when such violent change had been accomplished, the relation of the capitalist and the factory workers remained that of master and servant. As to the long hours of labor, too, employers, employees, and the public at large, being accustomed to it, never thought anything was amiss.

a. The Factory Act

(1) Such being the conditions under which the factory system had developed, the Government perceived the necessity of taking some protective measures and in 1882 organized a committee to investigate the actual conditions and customs of the factories throughout the country. In 1897 a bill was drafted based on the results of the investigation by this committee. But very unfortunately the Parliament dissolved at that time and the bill was not even presented. After many years of hard labor in overcoming obstacles thrown in its way, the bill finally passed through both Houses in 1911 for the first time; but it was not until 1916 that it became operative, owing to the fact that deciding on the rules of enforcing the law took a long time,

(2) As a result of this law, an Imperial Decree was issued ordering the Department of Agriculture and Commerce to establish a factory section in the Department. In pursuance of this decree the Department appointed the Vice Minister as the sectional chief with four factory supervisors and five sub-supervisors to assist him. Moreover it has been decided to have local supervisors placed in several important places, and in fact there are now about two hundred of them distributed in various parts of the country. The expenditure required in this work is about ¥ 200,000. Although we have now this Factory Law for the protection of child laborers, no special law has been enacted as to the restriction of the work hours of adult laborers, it being left entirely to the agreement between the employers and employees.

The restrictions placed upon child labor are as follows:

- (a) THE AGE OF THE CHILD LABORER. "The factory owners (employers) are not allowed to hire children under twelve years of age except under special administrative permissions."

- (2) **THE PROHIBITION OF NIGHT WORK.** "All children under fifteen years of age are not allowed to be employed in any work after 10 P.M. and before 4 A.M. But for fifteen years after the enforcement of this law, those special industries which require night work or continual day-and-night work may be exempted from the application of this law by the permission of the Minister of the Department."
- (3) **HOLIDAYS AND RECESS PERIODS.** "To children under fifteen years of age, two holidays should be allowed in a month and to children of the same age who are employed in a business requiring day-and-night work, four holidays should be allowed in a month, and if the working time should exceed six hours a day, a recess of at least half an hour should be given to them, if ten hours, a recess of at least one hour."
- (4) **CASES WHERE ASSISTANCE IS TO BE GIVEN.** "When a factory operative meets accident, falls sick, or dies without any serious fault of his own, the employer is required to give financial assistance to him or to his surviving family."

(3) The Number of Child Laborers in Japan

The number of child workers in factories in 1916 is shown in the accompanying table:

Age	Total	Boys	Girls
10-12	10,914	1,938	8,976
12-15	<u>133,570</u>	<u>29,853</u>	<u>103,717</u>
All ages	144,484	31,791	112,693

The total number of the adult operatives and the child laborers in factories being about a million, children form nearly fifteen per cent.

b. Welfare Work

(1) Special arrangements made for the promotion of the laborer's welfare are not few. Since the operation of the Factory Law, they have rapidly increased, although their exact number is not yet ascertained. In the Prefecture of Tokyo there are about 1,600 factories of all sizes and about 230,000 operatives. There are about 500 factories that employ more than 50 workers. Sixty-three out of these 500 factories have mutual aid societies, some of which, in case of sickness or retirement of the members, give financial aid

out of the fund paid up by operatives exclusively, and others of which give aid out of the fund contributed to by the operatives and the employers. The latter usually contribute as much as or half as much as the total sum of the contribution by the employees. There are also day nurseries, rent-free houses, dormitories, bath-houses, places of amusement and so on, altogether numbering 210. And for the education of the employees there are 56 institutions where they train apprentices and give supplementary instruction or primary school education, and the prospect is that these institutions will gradually increase.

I must confess that what has been said above is a very imperfect presentation of the subject. And time does not allow me to discuss fully the advisability or inadvisability of the long hours of labor to which Japanese children are subjected. I should only say that labor in Japan has a peculiar history and circumstances, and now to adopt the American or European system bodily in entire disregard of that history and circumstances would be only to bring on unnecessary disturbance if not disaster. As principles, the propositions made by the Committee on the International Labor Alliance meet our approval, but Japan is under the necessity of steering her course in this matter with due regard to her peculiar internal conditions as well as external circumstances, and for this reason, Japan may have to be treated as an exception. We are not, of course, satisfied with the present condition of the Factory Act; but we must be patient. Perseverance has accomplished wonders. Rome was not built in a day. Japan, though not very slow in making progress, requires time to bring about such fundamental changes as suggested by the Committee now meeting in Paris.

TB-PH-WEL 11

THE CHILD WELFARE LAW

PUBLIC HEALTH AND WELFARE TECHNICAL BULLETIN

PH&W GHQ SCAP APO 500

1. General Background

a. The Child Welfare Law, passed by the Diet 21 November 1947, became effective, in part, on 1 January 1948 and will become wholly effective, 1 April 1948 (Article 63). The law supersedes and repeals the "Law for Prevention of Cruelty to Children" and the "Juvenile Training and Education Law". (Articles 65, 66, 67, 68).

b. Generally, the Japanese hold to the theory that a child under 14 years of age cannot commit a crime, and that the child is disgraced if it is necessary for him to appear before a court. This concept accounts for the placement of children, particularly for those under 14 years of age, in institutions for juvenile training and education (Kyogo-in) by agencies or individuals rather than through court action. This philosophy also is based on the theory that treatment of delinquency should be corrective in nature rather than punitive. Lack of training personnel, training facilities, literature, and supervision over institutions by qualified persons has often defeated this progressive attitude.

c. Social workers in Japan realize that the relaxed attitude of the Japanese family throughout the war years coupled with the fact that there are now a great number of children from broken families has increased the delinquency problem measurably. Institutions have retrogressed because of lack of trained personnel, lack of funds for upkeep of facilities and equipment since 1938, and inability to repair war damaged institutions.

d. Community Chest funds for private institutions, more national funds for public institutions, and an increase in training opportunities for social workers as well as an increase in interest in social work as a profession will help to overcome these difficulties.

e. It should be noted that the Child Welfare Law is only one of several affecting children. Education laws, labor laws, and the new Juvenile Court Law, yet to be written, are expected to have considerable influence on the care of children in Japan.

2. Central and Prefectural Child Welfare Boards.

A continuing interest in child welfare programs is best guaranteed by actual participation of the community in the program. Articles 8, 9 and 10 of the new Child Welfare Law provide for National (Central) and Prefectural Child

persons, labor leaders and others of like stature who will take an active interest in the program and will be in a position to criticize official activities or inactivity when such criticism seems justified.

3. Child Welfare Officials (Articles 11, 13, 14, 29, 62, 64).

a. Qualifications.

The inauguration of child welfare officials (Jido Fukushi-shi) represents the first time in Japanese history that community social workers have been hired by the government. Their duties are to "work for the promotion of welfare of the children and expectant and nursing mothers, acting as their councillors for their care, health and general welfare".

Child welfare officials shall be qualified as second class officials, either clerical or technical and shall fall under any of the following qualifications:

- (1) One who has been engaged in child care, health or welfare services not less than two years:
- (2) One who has a degree of "Gakushi" from a department of a university specializing in either psychology, pedagogy, sociology:
- (3) Physician
- (4) One who has graduated from a training school or a training facility for child welfare officials or workers for child welfare agencies designated by the Ministry of Welfare:
- (5) Other persons whom the Minister of Welfare deems qualified as a child welfare official.

Instructions to prefectures state that child welfare officials should be persons of practical ability, skilled as case-workers, and be of mature character. Records of applicants, along with recommendation of the governor shall be submitted to the Ministry of Welfare for approval.

b. Duties.

The total number, while admittedly insufficient, represents an important first step. The successful operation of these officials and their acceptance by the community may affect future numerical increase as well as the use of paid officials in other welfare programs (see Incl. #1, "Placement Chart").

Governors are cautioned that the officials shall be located in areas which have demonstrated special need for their services, and that they are not to be used as clerical workers unless specifically hired for that purpose. Generally, the officials are to work with the Child Welfare Center, district, city, town or village offices, however, they are prefectural officials (see Incl #2). More specifically, their duties are prescribed as follows:

(1) To study and be well acquainted with the conditions of children and expectant mothers in his district:

(2) To know the resources of the community and to be able to give consultant services on individual child welfare problems.

(3) To discover, through referrals by Minsei-iin and through their own initiative, individual children and families in need of consultation services during early stages of child misbehavior or delinquency.

(4) To maintain good and effective liaison with other governmental officials to assure cooperation in his work.

(5) To cooperate closely with Child Welfare Centers and children's institutions and assist them with advice and consultation.

(6) To keep good records which are readily available.

4. Child Welfare Workers (Articles 12, 13, 14, 29, 62, 64)

The term "Child Welfare Worker (Jido-iin)" is used in the Child Welfare Law to designate volunteer, unpaid welfare workers who have definite responsibilities under the provisions of the law. In order to avoid establishing a second group of volunteer workers, the law provides that the duties of the child welfare workers will be assumed by the Minsei-iin. The term, Child Welfare Worker, is, therefore, used to designate Minsei-iin. According to Article 64 the term of office of all Minsei-iin ends 31 March 1948 and reappointments will be based on experience, education, or interest in children's work. Child Welfare Workers will cooperate with Child Welfare Officials in the execution of their duties. This article is the only major change proposed by the Child Welfare Committee and was based on a desire to increase the efficiency of the Minsei-iin.

5. Child Welfare Center or Station (Jido-Sodan-sho).

The Child Welfare Center is seen by the Japanese as the hub of all child welfare work in the prefecture. At present there are Centers in the larger prefectures only. According to the law the purpose of the Center is to "promote the welfare of children through consultation and for study - social, mental, psychological and physical - of their capacities". It is hoped that the Centers will eventually be staffed with doctors, psychologists, psychiatrists and social workers as needed and that services will be available to the general public, schools, and juvenile courts. The Centers may have facilities for temporary sheltering of the children when necessary. Those now operating are being used for medical and psychological examinations and for holding pickup children for quarantine periods previous to placement (Articles 15, 16, 17, 18).

Previous to the establishment of a Child Welfare Center (station) governors are requested to submit area and building plans and proposed personnel and budgetary requirements to the Ministry of Welfare for approval.

Governors may plan for more than one center in the prefecture, however, one station shall be designated as the Central Child Welfare Center. The head

of the Central Center may order the heads of other centers in the prefecture to submit reports as required. Areas of responsibility are to be designated by the governor.

Heads of Child Welfare Centers may request Child Welfare officials or workers to make necessary investigations and shall make available to those workers all information regarding the child or its family contained on file.

When, upon the advice of a Child Welfare Center, a child is to be placed in an institution or a foster family, the center is required to furnish all available information to the head of the institution or family concerned.

Heads of institutions or families are required to report any deaths which occur or other changes affecting the child, to the center concerned. Institutional or foster home care may be terminated or suspended at the request of family or institutional heads with approval of the head of the Child Welfare Center.

6. Maternal and Child Health Program (Articles 19, 20, 21, 22, 23).

This program, while it is the function of the Children's Bureau of the Ministry of Welfare through its Maternal and Child Health Section, is primarily a health and health education program. In the prefectures the personnel will be in the department of Health (Eisei-bu) and will operate through that Department and through Health Centers and private physicians, midwives, nurses, etc. It is to be noted that the school health program remains a function of the Ministry of Education.

The law provides a wide, general framework for maternal and child health programs under which the Bureau is now attempting to inaugurate a specific plan.

While some restrictions are being placed on the program for the present, the following items will probably be included:

- a. A modified Maternal and Child Health Handbook for medical records
- b. A plan for location of and treatment of physically handicapped and weak children.
- c. Free pre-natal, delivery and post-partum care in hospitals - under certain conditions.
- d. Free or partially free venereal disease treatment under certain conditions.
- e. Physical examinations for children of pre-school age with particular emphasis on those under one year of age.
- f. Training courses, lectures, and written material for doctors, midwives, nurses and other interested technicians as well as for the general public.

g. Education regarding infant and maternal mortality and a drive to increase pre-natal examinations as well as to teach better delivery and post-partum care methods.

h. Prevention of childhood diseases through education and preventive medicine.

7. Provisions for Protection of Children (Articles 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 59, 60, 61, 62)

a. In an attempt to emphasize public responsibility for children the law points out that "any person who has discovered a child without a guardian or with an inadequate guardian shall report the child to the Child Welfare Center, the Child Welfare officials or to the Juvenile Court". The head of the Center records social and medical information as required, and depending on the circumstances involved may:

- (1) Give admonition to the child or the child's guardian or request them to submit a written oath or pledge.
- (2) Provide the child or his guardian with the guidance and service of child welfare officials or child welfare workers.
- (3) Place the child in a foster home or an institution.
- (4) Refer the child to the Juvenile Court.

The law provides that court action shall be used to remove children from abusive or neglectful parents or guardians when such parents object to release of the children. Properly certified child welfare officials are authorized to enter premises in order to carry out investigations when the necessity is indicated.

b. The following acts are specifically prohibited:

- (1) Making a show of deformed or crippled children.
- (2) To let children beg or to beg by means of a child.
- (3) To allow children under fifteen years of age to do acrobatic feats or circus riding for a public show.
- (4) To allow children under fifteen years of age to sing, play, or do other performances from house to house, on the street or similar places as a public show.
- (5) To allow children under fifteen to act as waiters where liquors are served.
- (6) To allow children to practice obscene acts. This article prohibits the use of girls under the age of 18 as prostitutes.
- (7) To transfer the custody of a child to a person who may violate the foregoing prohibited acts or other laws regarding children.

Article 34 also prohibits exploitation of children in institutions and provides that minimum standards as well as Labor Laws and Ordinances shall be respected. Items 3, 4 and 5 do not apply to children over 14 years of age who have completed compulsory education or its equivalent.

Employees of Child Welfare Centers who reveal personal information regarding clients without due reason shall be imprisoned up to 6 months or fined not more than 3,000 yen. Persons refusing information, interfering with, or avoiding the execution of duties of the child welfare workers or public officials concerned with child welfare work or who refuse to answer questions, make a false statement, or cause a child not to answer or to answer falsely, shall be fined up to 5,000 yen.

8. Child Welfare Agencies (Articles 35, 36, 37, 38, 39, 40, 41, 42, 43, 44).

a. Those persons wishing to establish a private agency falling under the jurisdiction of the Child Welfare Law (agencies listed below) shall apply for approval to the prefectural governor concerned. Applications shall include the following information:

- (1) Name, kind of agency and location.
- (2) Grounds and building plans and equipment list.
- (3) Method of operation.
- (4) Budget of income and expenditures.
- (5) Proposed initial date of operation.
- (6) History and economic status of those who wish to establish such an agency.
- (7) Articles of incorporation, rules of the foundation juridical person and other regulations of an association or legal body.

b. Applications to the governor to permit termination of an agency shall include:

- (1) Reasons for termination.
- (2) Disposition of the inmates.
- (3) Disposition of the property.

c. The following agencies are those included under the Child Welfare Law:

- (1) Josan-Shisetsu (Maternity Home or Hospital) is the agency which renders free maternity services.
- (2) Nyuji-in (Infant's Home) is the agency for children under two years of age whose mothers are deceased, ill and unable to provide proper care, or who for any other reason are unable to provide care.

(3) Boshi-ryo (Mother's and Children's Home) is the agency which provides care for widows with dependent children or women in equivalent circumstances and their dependent children.

(4) Hoikujo (Day Nursery) is an agency offering day-care for infants and pre-school children.

(5) Jido-Kosei-Shisetsu (Children's Recreational Agency) are children's playgrounds or similar recreational centers.

(6) Yogo-Shisetsu (Orphanage or Dependent Child's Institution) is an agency offering full time care to orphans and other needing such care.

(7) Seishin-Hakujakuji-Shisetsu (Home for Feeble minded children) is the agency for the care and training of the feeble minded child.

(8) Ryoiku-Shisetsu (Home for Physically handicapped children) are agencies for physically weak children or for the vocational guidance and therapeutic treatment of the physically handicapped.

(9) Kyogo-in (Home for juvenile training and education) is the home for children under 14 years of age (upon entering) who are delinquent or pre-delinquent.

Certain matching funds are available to governmental bodies who may wish to build these institutions, however, the prefectural administrative office must give prior approval.

At the request of the Child Welfare Board, cities, towns and villages may be ordered by the governor to establish such agencies.

9. Minimum Standards (Articles 45, 46, 58)

The Ministry of Welfare is authorized, with the assistance of the Central Child Welfare Board, to establish minimum standards for the equipment and operation of all children's institutions. Heads of such agencies may be requested to submit reports and public officials concerned with child welfare work may investigate such agencies to ascertain that minimum requirements are being maintained. The administrative office, after referral to the Child Welfare Board, may order compliance or may close institutions which do not comply.

10. Appeal provision (Article 59)

Any person who is dissatisfied with a decision made by the Minister of Welfare, governors, or heads of cities, towns and villages or heads of Child Welfare Centers (stations) may appeal to the administrative office concerned.

11. Recovery of expenses (Article 55)

Certain expenses incurred by the government for the care of individuals is recoverable from persons able to pay for such services.

12. Institutional Educational Requirements (Article 48)

The article generally provides for compliance with compulsory education laws.

13. The law provides that "training schools" for employees or others may be established in connection with any institution with the approval of the Minister of Welfare.

14. Nursery teachers and those desiring certification as such will be required to meet one of the following qualifications to be eligible for examination and certification: Graduation from a high school under the School Education Law; three years experience in a child care institution; other experience or education deemed adequate by the Ministry of Welfare.

Those who qualify will be examined before a "Board of Examination of Nursery Teachers" to be established in each prefecture. The examination shall be based on the following subjects: General Social Work, Child Psychology, Principles of Health, Hygiene and Physiology, Theory and practice of Nursing, Theory and Practice of Nutrition, Theory of Child Care, Practice of nursery.

15. Ratio of expenses as between city, town, village, prefecture and central government is shown on Inclosure #3.

Note: This Bulletin has been prepared from material in officially approved copies of the Cabinet Ordinance, Ministerial Regulations and orders as yet unnumbered and unpublished, as well as from the Child Welfare Law.

DISTRIBUTION OF CHILD WELFARE OFFICIALS

Name of Prefecture	Number of Child Welfare Officials	Name of Prefecture	Number of Child Welfare Officials
Hokkaido	17	Kyoto	16
Aomori	3	Osaka	34
Iwate	3	Hyogo	19
Miyagi	5	Nara	3
Akita	3	Wakayama	4
Yamagata	4	Tottori	3
Fukushima	4	Shimane	3
Ibaraki	3	Okayama	4
Tochigi	4	Hiroshima	9
Gumma	4	Yamaguchi	10
Saitama	6	Tokushima	3
Chiba	7	Kagawa	3
Tokyo	50	Ehime	6
Kanagawa	23	Kochi	3
Niigata	6	Fukuoka	19
Toyama	4	Saga	3
Ishikawa	5	Nagasaki	7
Fukui	3	Kumamoto	6
Yamanashi	3	Oita	5
Nagano	6	Miyazaki	3
Gifu	4	Kagoshima	4
Shizuoka	9	Aichi	20
Mie	7	Shiga	3
Incl #1		Total	373

Incl #2

Medical Bureaus
Ministry of Welfare

Matters pertaining
to Child Health

Children's Bureau
Ministry of Welfare

Pref. Dept. of Health

Pref. Dept. of Welfare

Maternal - Child
Health Section

Matters pertaining
to Child Health

Children's
Section

Social
Affairs
Section

Public Health Centers
Maternal and
Child Health Services

Child Welfare
Center

Child Welfare
Officials

City-Town
Village or
Ward Office

Workers-
Minsei-iin

Officials of child welfare centers and child welfare officials are prefectural employees responsible to the Children's Section in the prefectures, child welfare officials are to cooperate in every way with Child Welfare Centers, city-town-village or ward offices, and with Minsei-iin. City-town-village-ward offices and Minsei-iin are responsible to the Children's Section only in matters concerning Child Welfare.

Incl. #3

RATIO OF EXPENSES FOR ENFORCEMENT OF THE CHILD WELFARE LAW

Bodies which Establish or Maintain	Item of Expense and Remarks	Ordinary Expenditure			Extra-ordinary Expenditure	
		Bodies which bear the expense			Bodies which bear the Expense	
		Nation	Prefecture	Cities Towns, Villages	Nation	Prefecture Cities, towns Villages
Established by Metro- polis Hokkaido and Prefectures	1. Local Child Welfare Board	$\frac{1}{2}$				
	2. Child Welfare Officials & Child Welfare Workers	$\frac{1}{2}$	$\frac{1}{2}$			
Prefectures Prefectures	3. Child Welfare Centers (Sta)	8/10	2/10		$\frac{1}{2}$	$\frac{1}{2}$
	4. Expenses required for Health Guidance for Expectant and nursing mothers & the Guardians of infants & pre-school children for those unable to pay for such services	8/10	2/10			
Prefectures Prefectures	5. Maternal & Child Handbook	$\frac{1}{2}$	$\frac{1}{2}$			
	6. For the Care of those in lying-in agencies, mother's homes & Day Nurseries, established by Metro- polis, Hokkaido & Prefectures.	8/10	1/10	1/10		
Prefectures	7. Institutional Care or Foster Home Care	8/10	1/10	1/10		
Prefectures Prefectures	8. Temporary Care of Children	8/10	1/10	1/10		
	9. For those in Mothers' Homes Day Nurseries & Homes for Physically Handicapped (delicate children) who are mainly not in need of public aid				1/3	1/3
Prefectures	10. For other agencies (Exclusive of Infant Homes & Children's Recreat- ional Agencies for those not in need of Public Aid)	8/10	1/10	1/10	$\frac{1}{2}$	$\frac{1}{2}$
Prefectures	11. For Training Agencies for Personnel	$\frac{1}{2}$	$\frac{1}{2}$		$\frac{1}{2}$	$\frac{1}{2}$
Prefectures	12. For costs of Care of Mothers' Homes & Day Nurseries for those unable to pay	8/10	1/10	1/10		

RATIO OF EXPENSES FOR ENFORCEMENT OF THE CHIL D WELFARE LAW

Bodies which Establish or Maintain	Item of Expense and Remarks	Ordinary Expenditure			Extra-ordinary Expenditure		
		Bodies which Bear the Expense			Bodies which bear the Expense		
		Nation	Prefecture	Cities towns, villages	Nation	Prefecture	Cities Villages Towns
Established by Cities Towns and Villages	13. For those in Mother's Homes, Day Nurseries and Homes for Physically Handicapped Children who are Mainly not in need of Public Aid				1/3	1/3	1/3
Established by Cities Towns and Villages	14. For other Agencies lying-in Agencies, Mother's Homes, Day Nurseries or others.	8/10	1/10	1/10	1/2	1/4	
Established by Cities Towns and Villages	15. For Training Agencies for Personnel	1/2	1/4	1/4	1/2	1/4	
Established by Bodies other than the above	16. For care in lying-in Agencies Mother's Homes, and Day Nurseries	8/10	1/10	1/10			
Established by Bodies other than the above	17. For care in other Agencies (exclusive of Infant's Homes and Children's Recreational Agencies for those mainly not in need of Public Aid	8/10	1/10	1/10			