AN ACT

Amending the act of September 1, 1965 (P. L. 420), entitled "An act for the protection of the public health, and to prevent fraud and deception in the manufacture, sale, offering for sale, exposing for sale, and possession with intent to sell, of adulterated or deleterious ice cream, frozen custard, french ice cream, french custard ice cream, sherbet, fruit sherbet, ice milk, ice water, ice quiescently frozen confections, quiescently frozen dairy confections, milk shakes, including coated ice cream and similar products and the coating thereof, fixing standards for ice cream, frozen custard, french ice cream, french custard ice cream, sherbet, fruit sherbet, ice milk, ice water, ice quiescently frozen confections, and quiescently frozen dairy confections, and milk shakes, and to prevent sale of imitation of such products, providing for licensing, authorizing and regulating the manufacture and sale of artificially sweetened ice cream and ice milk for diabetics, conferring powers and imposing duties upon the Department of Agriculture, prescribing penalties, providing for the enforcement thereof, and making repeals," providing for licensing and regulating the manufacture and sale of frozen desserts.

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

Section 1. The title and sections 1, 2 and 3, act of September 1, 1965 (P. L. 420), known as "The Ice Cream Law," are amended to read:

## AN ACT

For the protection of the public health, and to prevent fraud and deception in the manufacture, sale, offering for sale, exposing for sale, and possession with intent to sell, of adulterated or deleterious [ice cream, frozen custard, french ice cream, french custard ice cream, sherbet, fruit sherbet, ice milk, ice water, ice quiescently frozen confections, quiescently frozen dairy confections, milk shakes, including coated ice cream and similar products and the coating thereof, fixing standards for ice cream, frozen custard, french ice cream, french custard ice cream, sherbet, fruit sherbet, ice milk, ice water, ice quiescently frozen confections, and quiescently frozen dairy confections, and milk shakes, and to prevent sale of imitation of such products,] frozen desserts, providing for licensing, authorizing and regulating the manufacture and sale of [artificially sweetened ice cream and ice milk for diabetics] frozen desserts, conferring powers and imposing duties upon the Department of Agriculture, prescribing penalties, providing for the enforcement thereof, and making repeals.
Section 1. Declarafion of Policy; Definitions [; Essential Requisites of Products.-(a) Except where otherwise indicated, it is expressly declared to be the intent of the Legislature in the passage of this act that Pennsylvania law substantially conform with the Federal regulations promulgated under the authority of the United States Secretary of Health, Education and

Welfare in so far as prescribing definitions and standards for frozen desserts published pursuant to section 701, 52 Stat. 1055 (21 USC 371). It is further intended that provisions of this act be construed in a manner similar to the corresponding Federal regulation aforesaid].-(a) It is hereby declared that the dairy industry is a paramount industry of the Commonwealth and the production, processing, packaging, distribution and sale of frozen desserts is an important segment of the dairy industry and is of vast economic importance to the Commonwealth and of vital importance to the consuming public of the Commonwealth, and which should be encouraged and promoted in the public interest. It is further declared to be in the interest of the dairy industry and of the consuming public that there be uniformity of standards for frozen desserts as between the various states and the Federal Government to the end that there may be free movement of frozen desserts between the states and to the end that the inefficiency, needless expense, and confusion caused by differences in products sold under the same name, and differences in labeling of identical products may be eliminated.

It is further declared to be the purpose of this act to promote honesty and fair dealing in the interest of consumers, to insure fair competition as between the manufacturers and distributors of the different products and to prevent confusion and deception in the sale of all such products by establishing definitions and standards of identity for such products, and by providing for rules and regulations which will effect their orderly marketing and insure uniform and proper sanitary standards.
(b) (I) For the purpose of this act, ["ice cream" is defined as any frozen sweetened milk product which is stirred during the process of freezing and includes every such frozen milk product which contains no less than twenty percent by weight of milk fat, milk solids not fat, or milk fat and milk solids not fat and which in any manner simulates the texture or characteristics of ice cream no matter under what coined or trade name it may be sold. Ice cream shall be made from a combination of one or more of the following ingredients, viz., any clean, wholesome cream, milk and all forms of milk fat, and any clean and wholesome form of milk solids not fat with one or more of the following ingredients: sugars and flavoring, with or without eggs, coloring, water, fruit juice, fruit, chocolate, cocoa, malted milk, nuts, properly prepared and cooked cereal, cakes or confections, each of which ingredients shall be wholesome, edible material and other ingredients approved by the Secretary of Agriculture after a hearing. The finished product may contain not more than one-half of one percent by weight of stabilizer and may contain not more than one-fifth of one percent by weight of emulsifier: Provided, however, That the stabilizer and emulsifier has been approved by the Department of Agriculture. The finished product shall contain not less than ten percent of milk fat by weight except when fruit, nuts, cocoa, malted milk, chocolate, cakes, properly prepared and cooked cereal or confections are used for the purpose of flavoring, the weight of milk fat and
total milk solids shall not be less than ten percent and twenty percent respectively of the remainder obtained by subtracting the weight of such ingredients from the weight of the finished ice cream, but in no case is the weight of the milk fat or total milk solids to be less than eight percent and sixteen percent respectively of the weight of the finished ice cream. The finished ice cream shall contain not less than one and six-tenths pounds of total food solids to the gallon and weigh not less than four and one-half pounds to the gallon. Ice cream manufactured, prepared or processed for consumption by diabetics shall contain only those ingredients prescribed by this section but shall be sweetened with an artificial sweetening agent and contain edible carbohydrates other than sugar. The artificial sweetening agent and the edible carbohydrates must be approved by the Department of Agriculture and no sugars, other than those naturally present in the milk solids or fruit agent, shall be added thereto.
(c) For the purpose of this act, "french ice cream," "french custard ice cream" and "frozen custard" shall conform to the definition and standards hereinbefore defined for "ice cream" no matter under what trade or coined name it may be sold or offered for sale except that it shall contain not less than one and four-tenths percent by weight of egg yolk solids: Provided, however, That when chocolate, cocoa, malted milk, fruit, nuts, properly prepared and cooked cereal, cakes or confections are used, the content of egg yolk solids may be reduced in proportion to such ingredient or ingredients added under the conditions prescribed in subsection (b) of this section for reduction in milk fat and total milk solids, but in no case is the content of egg yolk solids to be less than one and twelve one-hundredths percent.
(d) For the purpose of this act, "ice milk" shall conform to the definition and standard hereinbefore set forth for "ice cream," except that:
(1) Its content of milk fat is not less than two percent nor more than seven percent by weight.
(2) Its content of total milk solids is not less than eleven percent by weight.
(3) The quantity of total food solids per gallon shall not be less than one and three-tenths pounds.
(4) The provision for reduction in milk fat and total milk solids from addition of bulky flavor ingredients in subsection (a) does not apply.

Ice milk manufactured, prepared or processed for consumption by diabetics shall contain only those ingredients prescribed by this section but shall be sweetened with an artificial sweetening agent and may contain edible carbohydrates other than sugar. The artificial sweetening agent and the edible carbohydrates must be approved by the Department of Agriculture and no sugars, other than those naturally present in the milk solids or fruit agent, shall be added thereto.
(e) For the purpose of this act, "sherbet" or "fruit sherbet" shall conform to the definition and standard of identity prescribed for "ice cream" in subsection (b) of this section except that:
(1) The titratable acidity of the finished sherbet or fruit sherbet calculated as lactic acid shall not be less than thirty-five one-hundredths percent by weight.
(2) The content of milk fat and nonfat milk solids therein shall be such that the weight of milk fat is not less than one percent and not more than two percent by weight and the weight of total milk solids is not less than two percent and not more than five percent of the weight of the finished sherbet or fruit sherbet.
(3) The quantity of the fruit ingredients used shall be such that in relation to the weight of the finished sherbet the weight of fruit or fruit juice, as the case may be (including water necessary to reconstitute partially or wholly dried fruits or fruit juices to their original moisture content), shall not be less than two percent by weight in the case of citrus sherbets, six percent by weight in the case of berry sherbets and ten percent by weight in the case of sherbets prepared with other 'fruits. For the purposes of this clause tomatoes and rhubarb are considered as kinds of fruit.
(4) The provisions for the reduction in milk fat and total milk solids from addition of chocolate, cocoa, malted milk, fruit, nuts, properly prepared and cooked cereal, cakes or confections in subsection (b) of this section shall not apply.
(f) As used in this act, "ice" or "water ice" means any frozen sweetened product which is stirred during the process of freezing not conforming to the definitions and standards set forth in subsections (b), (c), (d) and (e) of this section no matter under what coined or trade name it may be sold or offered for sale. Ice or water ice shall be made from a combination of one or more of the following ingredients, viz., sugars, flavoring with or without eggs, coloring, water, fruit juices, fruit, cocoa, chocolate or nuts, and with or without wholesome edible acid in such quantity as seasons the finished food and with or without added stabilizer composed of wholesome edible material approved by the Department of Agriculture. It shall contain not more than one-half of one percent by weight of stabilizer. The titratable acidity of the finished ice or water ice calculated as lactic acid shall not be less than thirty-five one-hundredths percent by weight. The quantity of fruit ingredients used shall be such that in relation to the weight of the finished ice or water ice, the weight of fruit or fruit juice, as the case may be (including water necessary to reconstitute partially or wholly dried fruits or fruit juices to their original moisture content), is not less than two 'percent by weight in the case of citrus ices, six percent by weight in the case of berry ices, and ten percent by weight in the case of ices prepared with other fruits.
(g) As used in this act "quiescently frozen confection" means a clean and wholesome frozen sweetened flavored product in the manufacture of which freezing has not been accompanied by stirring or agitation (generally known

[^0]as quiescent freezing). This confection may be acidulated with harmless organic acid, may contain milk solids, may be made with or without added harmless pure or imitation flavoring, with or without added harmless coloring. The finished product may contain not more tham one-half of one percent by weight of stabilizer composed of wholesome edible material. The finished product shall contain not less than seventeen percent by weight of total food solids.
This confection must be manufactured in the form of servings individually packaged, bagged or otherwise wrapped, properly labeled and purveyed to the consumer in its original factory-filled package.

In the production of these quiescently frozen confections, no processing or mixing prior to quiescent freezing shall be used that develops in the finished confection mix any physical expansion in excess of ten percent by volume.
(h) As used in this act "quiescently frozen dairy confections" mean a clean and wholesome frozen product made from water, milk products and sugar with added harmless pure or imitation flavoring, with or without added harmless coloring, with or without added stabilizer, and with or without added emulsifier, and in the manufacture of which freezing has not been accompanied by stirring or agitation (generally known as quiescent freezing), it contains not less than thirteen percent by weight of total milk solids, not less than thirty-three percent by weight of total food solids, not more than one-half of one percent by weight of stabilizer and not more than one-fifth of one percent of weight by emulsifier. Stabilizer and emulsifier must be composed of wholesome edible material.
This confection must be manufactured in the form of servings individually packaged, bagged or otherwise wrapped, properly labeled and purveyed to the consumer in its original factory-filled package.
In the production of these quiescently frozen confections, no processing or mixing prior to quiescent freezing shall be used that develops in the finished confection mix any physical expansion in excess of ten percent by volume.
(i) For the purpose of this act, "milk shake," or any coined or trade name containing the words "milk shake" shall mean a semi-frozen drink produced by mixing one or more of the following ingredients, viz., any clean, wholesome cream, milk and all forms of milk fat and any clean and wholesome form of milk solids not fat with one or more of the following ingredients: sugars and flavoring, with or without eggs, coloring, water, fruit juice, fruit, chocolate, cocoa, malted milk, nuts, properly prepared and cooked cereal, cakes or confections, each of which ingredients shall be wholesome edible material.

It shall contain not less than twelve percent by weight of total milk solids. It shall contain not less than three and one-quarter percent by weight of milk fat with or without added stabilizers composed of wholesome edible material approved by the Department of Agriculture and with or without added emulsifier composed of wholesome edible material approved by the Department of Agriculture. The finished product may contain not more than one-half of one percent by weight of stabilizer and may contain not more than one-fifth of one percent by weight of emulsificr.
(j)] and for any rules, regulations, definitions, standards of identity, or labeling requirements promulgated pursuant thereto, the term "frozen desserts" shall be deemed to include ice cream, frozen custard, french ice cream, french custard ice cream, artificially sweetened ice cream, artificially sweetened ice milk, ice milk, freezer made milk shakes, fruit sherbet, water ice, quiescently frozen confection, quiescently frozen dairy confection, whipped cream confection, bisque tortoni, mellorine frozen desserts as all such products are commonly known, together with any mix used in such frozen desserts and any products which are similar in appearance, odor, or taste to such products or are prepared or frozen as such products are customarily prepared or frozen, whether made with dairy or non-dairy products but shall not apply to such commonly known or designated bakery products as frozen cakes and pastries, cream pies and fillings and toppings, meringue pie fillings and toppings, cream and ice box pies, fruit and custard pie fillings, boston cream pie fillings, cream puff fillings and custards, eclair and napoleon fillings and custards, or the like.
(2) For the purpose of this act, [an "ice cream] a "frozen dessert plant" shall mean any place, premises or establishment where [ice cream, frozen custard, french ice cream, french custard ice cream, ice milk, sherbet, fruit sherbet, ice water, ice, a quiescently frozen confection or a quiescently frozen dairy confection] frozen dessert is manufactured, prepared or processed for distribution or sale.

Section 2. Sale, Possession, etc., of Adulterated or Unregistered Products.-(a) It shall be unlawful for any person by himself or by his agents, servants or employes, to sell, offer for sale, expose for sale or have in possession with intent to sell, [ice cream, frozen custard, french ice cream, french custard ice cream, ice milk, sherbet, fruit sherbet, ice water, ice, a quiescently frozen confection or a quiescently frozen dairy confection coated or uncoated or the coating thereof or milk shakes] any frozen dessert:
(1) Which is adulterated within the meaning of this act;
(2) Which is not registered [where required] with the Department of Agriculture as required in this act. The possession of any such non-registered product shall be deemed prima facie evidence of an intent to sell the same: Provided, however, That such establishments as hotels, dining rooms and boarding houses where the above named products are produced and consumed only on the premises need not register such products with the Department of Agriculture.
(b) It shall be unlawful to import into this Commonwealth for sale any of the above named products coated or uncoated, unless the same are registered with and the manufacture thereof has been licensed by the Department of Agriculture where provided in this act.
[(c) It shall be unlawful for any person by himself or by his agents, servants or employes, to sell, offer for sale, expose for sale, or have in
possession with intent to sell, ice milk packaged in containers of greater than one-half gallon capacity if this ice milk or any of its ingredients contains added color or any ingredient added for the purpose of imparting a characterizing flavor.]

Section 3. What Constitutes Adulteration.-Any frozen [, sweetened product] dessert referred to in this act shall be deemed to be adulterated within the meaning of this act if-
(1) [Except as provided in section 4 of this act, it] It contains any [added preservative, any artificial sweetener, including saccharin, dulcin or any other] substance or compound that is deleterious to health.
(2) It contains any coloring substance deleterious to health: Provided, however, That this clause shall not be construed to prohibit the use of harmless coloring matter from a list of permitted coloring material established by the Department of Agriculture when such use does not conceal damage or inferiority.
(3) It contains any deleterious flavoring matter or flavoring matter not true to name.
(4) [It contains any paraffin, synthetic fats, oils or fats other than milk fat added to or blended or compounded with it. Chocolate ice cream may contain cocoa butter and the coating of coated ice cream may contain cocoa butter or other clean and wholesome edible vegetable oils. The use of emulsifying products including lecithin of the nature of polyhydric alcohol esters of fatty acids when approved by the Department of Agriculture and used only to the extent herein provided shall not be deemed in violation of the foregoing provisions.
(5) It is any frozen sweetened product regardless of the name under which it is manufactured, sold or offered for sale, which is made in imitation or semblance of, or is manufactured in a manner similar to the process used in manufacturing, but is not ice cream, frozen custard, french ice cream, french custard ice cream, ice milk, sherbet, fruit sherbet, ice water, ice, a quiescently frozen confection or a quiescently frozen dairy confection or a milk shake.
(6)] It is offered for sale from any container, compartment or cabinet which contains any article other 'than [ice cream, frozen custard, french ice cream, french custard ice cream, ice milk, sherbet, fruit sherbet, ice water, ice, a quiescently frozen confection or a quiescently frozen dairy confection or milk shake except that ice cream, frozen custard, french ice cream, french custard ice cream, ice milk, sherbet, fruit sherbet, ice water, ice, a quiescently frozen confection or a quiescently frozen dairy confection] frozen desserts except that frozen desserts when properly wrapped or packaged by the manufacturer and in unbroken packages or containers for delivery to the consumer may be offered for sale from one or more separate compartments of a refrigerated container or cabinet of which other separate

[^1]compartments contain properly wrapped, unbroken and sealed packages of frozen foods ready for delivery to the consumer. [Nothing contained in this clause shall be construed to modify in any way section 5 of this act.]
[(7)] (5) It falls below the standards of any of them fixed for the particular product by the definition [thereof contained in] promulgated pursuant to the authority granted by this act or is falsely labeled or labeled contrary to [the provisions of] regulations promulgated pursuant to this act.
[(8)] (6) It is manufactured under conditions not in conformity with the provisions of section 6 of, or rules and regulations promulgated by the department pursuant to, this act.

Section 2. Sections 4 and 5 of the act are repealed.
Section 3. Sections 6, 7, 8, 9 and 10 of the act are amended to read:
Section 6. [Ice Cream] Frozen Dessert Plants Sanitary Standards.-It shall be unlawful to operate any [ice cream] frozen dessert plant unless it shall be maintained and operated with strict regard for the purity and wholesomeness of the [frozen sweetened] products produced therein. The entire establishment and its appertaining premises, including fixtures, furnishings, machinery, apparatus, implements, utensils, receptacles and all equipment used in production, keeping, storing, handling or distributing shall be maintained and operated in a clean, sanitary manner. The equipment, containers and piping shall be constructed of a smooth nontoxic impervious corrosion resistant material and fabricated in such a manner that there will be no contamination of the products handled therein and they can be easily sanitized. All equipment shall be kept in good working order and condition and shall be located so as to facilitate cleaning and practically eliminate the possibility of contamination. All equipment and utensils used in the production of any [sweetened frozen] product whose surface comes in contact with any such product or any of the ingredients thereof shall be thoroughly cleaned after using and sterilized immediately prior to using. The clothing habits and conduct of the employes shall be conducive to and promote cleanliness and sanitation. There shall be proper, suitable and adequate toilets and lavatories and equipment for cleansing, constructed, maintained and operated in a clean and sanitary manner.

Section 7. Registration and Licensing of Plants.-(a) It shall be the duty of every person, whether resident or nonresident of this Commonwealth, operating [an ice cream] a frozen dessert plant or plants, whose products are sold or offered for sale in Pennsylvania, to apply to the Department of Agriculture for a license to do so and to register with the department each plant and every brand and type of product produced or manufactured in such plant on or before the first day of January of each year, or before any operation is undertaken, if after January first, and to pay to the department at the time such application for registration and license is filed an annual license fee which shall expire on the following December thirty-first as follows:

For each [ice cream] frozen dessert plant producing annually not in excess of one hundred thousand gallons, ten dollars ( $\$ 10$ ); in excess of one hundred thousand gallons and not in excess of two hundred and fifty thousand gallons, fifty dollars (\$50); and in excess of two hundred and fifty thousand gallons, one hundred dollars (\$100).
(b) The application for a license and registration shall be made on a form to be supplied by the Department of Agriculture.
(c) Upon approval of application for registration and license and payment of required license fee and also approval of sanitary conditions in [an ice cream] a frozen dessert plant, the Department of Agriculture shall issue to each applicant a license or certificate of registration which shall expire at the end of each calendar year and which will authorize the operation of said plant for the calendar year or portion thereof for which a license or certificate of registration shall be issued.
(d) Establishments such as hotels, dining rooms and boarding houses where the products defined herein are produced and consumed only on the premises need not comply with the licensing and registration provisions of this act, but the other provisions of this law and regulations passed pursuant thereto, shall apply to such establishments.

Section 8. Revocation of Licenses.-The Department of Agriculture is hereby authorized to revoke or suspend any license for cause and where it shall be properly ascertained that the [ice cream] frozen dessert plant is not operated in a proper and sanitary manner [as hereinbefore provided].

Section 9. Enforcement; Rules and Regulations.-(a) The Department of Agriculture is charged with the enforcement of the provisions of this act: Provided, however, That the Department of Agriculture in the usual manner, or any person, committee or association composed of persons affected by this act or rules or regulations of the Department of Agriculture may institute such action at law or in equity as may appear necessary to enforce compliance with this act or any rule, [or] regulation, definition or standard of identity of the Department [of Agriculture] made pursuant to the provisions of this act.
(b) The Department of Agriculture shall, after public hearing, adopt, promulgate and enforce [rules and regulations to carry out the purpose of this act to prevent deception in the sale of ice cream and the other products herein defined and to safeguard the health of consumers and to safeguard the manufacture, preparation, processing and distribution of ice cream and the other products herein defined whether manufactured, prepared or processed in a regular manufacturing plant, in a counter freezer or otherwise.] definitions and standards of identity for frozen desserts and the mixes used in the manufacture thereof together with rules and regulations governing the packaging, labeling, sanitary requirements and all other conditions relating to the manufacture, processing, distribution and sale of frozen desserts, whether manufactured or processed in a regular manufacturing plant, in a counter freezer or otherwise, to carry out the purposes of this act, to prevent deception in the sale of frozen desserts
and to safeguard the health of consumers. All definitions and standards of identity and rules and regulations promulgated by the Department shall be based on the hearing record and following any hearing to consider definitions and standards of identity, rules and regulations and labeling requirements or any of these, the Department shall issue a recommended decision and shall afford interested parties an opportunity to file exceptions based on the hearing record. The Department in issuing a final decision shall rule on any exceptions filed, setting forth its reasons therefor. Such regulations, when promulgated shall have the force and effect of law. The Department is hereby authorized to adopt insofar as applicable, the standards of identity and definitions from time to time promulgated by the Secretary of Health, Education and Welfare of the United States under the Federal Act Defining and Standardizing Frozen Desserts.

Section 10. Violations; Punishment; Injunction.-(a) Any person violating any of the provisions of this act or [definition and standard of the Department of Agriculture] definitions and standards of identity, rules or regulations made pursuant thereto shall, for the first or second offense upon conviction thereof in a summary proceeding, be sentenced to pay a fine of not less than twenty-five dollars (\$25), nor more than one hundred dollars ( $\$ 100$ ), and costs of prosecution, or in default of such fine and costs in the case of an individual, or the officers and members of an association, partnership or corporation, to undergo an imprisonment in the county jail of not less than thirty days nor more than sixty days, and for a third or subsequent offense within two years shall be guilty of a misdemeanor and sentenced to pay a fine not exceeding one thousand dollars (\$1000), or in the case of an individual or the officers and members of an association, partnership or corporation, to undergo an imprisonment not exceeding one year, or both, in the discretion of the court.

All fines and penalties imposed and recovered for the violation of the provisions of this act shall be paid into the State Treasury through the Department of Revenue and credited to the General Fund.
(b) The Attorney General, at the request of the department, may in the name of the Commonwealth institute proceedings in equity in the Court of Common Pleas of Dauphin County for the purpose of enjoining the conduct of business in this Commonwealth contrary to the provisions of this act and for such purpose jurisdiction is hereby conferred upon said court. In such case the Attorney General shall not be required to give bond.

Section 4. Sections 11 and 12 of the act are repealed.
Section 5. Section 13 of the act is amended to read:
Section 13. Short Title.-This act shall be known as and may be cited as "The [Ice Cream] Frozen Dessert Law."

Section 6. The act is amended by adding, after section 13, a new section to read:

Section 13.1. Severability.-It is hereby declared to be the
legislative intent that if this act cannot take effect in its entirety because of the decision of any court holding unconstitutional any part, sentence or clause hereof, the remaining provisions of the act shall be given full force and effect as completely as if the part held unconstitutional had not been included herein.

It is hereby declared as the intent of the Legislature that every other part, sentence or clause of this act would have been enacted had such unconstitutional provision not been included herein.
Section 7. This act shall take effect immediately: Provided, however, That for a period of one year after the passage of this act, sections 1,2 (c), 3 (4), 3 (5), 4 and 5 of the act of September 1, 1965 (P. L. 420), shall become the definitions, standards of identity, and regulations of the Department unless specifically superseded by definitions, standards of identity or regulations promulgated by the Department of Agriculture and expressed to supersede the sections of the act of 1965 above mentioned.

Aprroved-The 4th day of June, A. D. 1969.

## RAYMOND P. SHAFER

The foregoing is a true and correct copy of Act of the General Assembly No. 18.



[^0]:    "h "fruit" in original.
    2"per cent" in original.

[^1]:    ${ }^{1 / 4}$ than" repeated in original.

