DOMESTIC SCIENCE

Third of a Series of Interesting Papers on the Subject.

Written for the CANADIAN HOME JOURNAL. By "MEL MAC."

Chemistry of Foods.

CHEMISTRY teaches us how to unite two or more elementary bodies into one compound; and how to decompose compound bodies into their simple elements. As before stated, an element or elementary substance is one which, in the present state of science cannot be reduced to a simpler form. Those inconceivably minute particles of an element, which cannot be further subdivided, are termed "atoms" (Gr. a "not," and temno "to cut"), that is, that which cannot be cut or divided. These atoms are much smaller than the spaces which separate them, indeed, Newton regards them as being infinitely smaller, in fact as mere mathematical points; and Sir John Herschel compares a ray of light penetrating glass, to a bird threading the mazes of a forest.

These atoms, however, are drawn towards each other to form groups, by powerful force known in chemistry as chemical attraction, chemical affinity or chemism, which acts only at insensible distances, *i.e.*, at distances so minute as to be incapable of measurement.

These groups of atoms are called "molecules," and in all molecules of the same chemical element there are equal numbers of the same kinds of atoms.

These molecules are held together by that force known as cohesion, which, like that in chemism, acts only at insensible distances and between the constituent particles of the same body.

As we have seen, groups of atoms form molecules, which in turn combine to form elements, which are combined with each other in various conditions and quantities, forming every known compound or substance, whether organic or inorganic.

NOTE.—In chemistry we use the word "matter" as a general expression for any and every substance.

All natural objects are divided into two classes, (1) organic bodies, those formed of cells or organs, and (2) inorganic bodies the former being distinguished from the latter by the exhibition of vital power or life.

Organic bodies are subdivided into animals and vegetables the former being distinguished from the latter by the possession of sensibility and volition.

Inorganic bodies are divided into metals and metaloids. Metals possess metallic lustre, are good conductors of heat and electricity, and combine with each other to form alloys. Compounds of mercury are called amalgams.

Matter exists in three separate forms, (1) solid, (2) liquid, and (3) gaseous.

The amount of heat or caloric present determines the form of the body. If heat be applied the attraction of cohesion existing among the particles is gradually overcome and the body passes from a solid to a liquid, and from a liquid to a gas, as ice (solid), water (liquid), steam (gaseous). If heat be abstracted, the attraction of cohesion gradually draws the particles into closer proximity, and the body passes from a gas to a liquid, and finally from a liquid to a solid, hence heat and cohesion are called antagonistic forces.

"One of the most remarkable characteristics of gases, is the property they possess of diffusing themselves among one another. Thus if a light gas and a heavy one are once mixed they exhibit no tendency to separate again; and no matter how long they may be allowed to stand at rest, they are found upon examination intimately mingled with each other. Moreover, if two vessels be placed one upon the other, the upper being filled with any light gas (hydrogen) and the lower with any heavy gas (carbonic acid), and if the two gases be allowed to communicate with one another by a narrow tube, or a porous membrane, a remarkable interchange rapidly takes place, *i.e.*, in direct opposition to the attraction of gravity the heavy gas ascends and the light gas decends until they become perfectly mixed in both vessels.

"NOTE.—The property of gaseous diffusion has a very intimate bearing upon the composition of the air. If either of the constituents of the air were to separate from the mass, the extinction of life would soon follow. Besides, were it not for the existence of this property, various vapors would accumulate in certain localities, as large cities, manufacturing districts, volcanic regions, etc., in such quantities as to render them totally uninhabitable." —*Dr. J. H. Sangster.*

LAMBTON MILLS, ONT.

(To be continued.)

The Plain Girl's Matrimonial Chances.

A WOMAN who had seen much of the world was asked on one occasion why plain girls often get married sooner than handsome ones. To which she replied that it was owing mainly to the tact of the plain girls and the vanity and want of tact on the part of men. "How do you make that out?" asked a gentleman. "The plain girls flatter the men, to please their vanity; while the handsome ones wait to be flattered by the men, who haven't the tact to do it."

It is always safer to risk a little flattery.

"Happy is the wooing
That is not long a-doing,"

says the old couplet, but a modern counseller thinks it necessary to qualify the adage by the advice, "Never marry a girl unless you have known her three days, and, at a picnic." In this as in other matters, it is always desirable to hit the happy medium. To marry in haste is certainly worse than a too protracted courtship—though the latter has its dangers, too, for something may occur at any time to break off the affair altogether and prevent what might have been a happy union.

A friend of a famous Canadian preacher, once asked him regarding a girl of their acquaintance, "Will she make a good wife for me?" "Well," was the reply, "I can hardly say. I never lived in the same house with her." This answer touched the real test of happiness in married life. It is one thing to see women on "dress" occasions, and when every effort is made to secure a good opinion from appearances, but it is often another thing to see them at their usual occupations at home.

THE RETROSPECT OF AN AMERICAN BRIDE

On Making Her Home in Canada.

Written for the CANADIAN HOME JOURNAL by

"HOPE."

ONE week's absence from the States! One week since the eventful, the great day of my life!" This is the soliloquy of of a bride as she allows her mind to review the past. From the first there was hustle, bustle, and rush, over the preparation of gowns, hats and shoes, and the many dainty accessories necessary to the complete trousseau. This trying ordeal was passed. Farewell calls were made. Good wishes accepted. Presents were received. Of this busy season the days, the hours, passed all to quickly.

She then sees herself. The girl of yesterday, arrayed in white, in the solemn silence of the grand cathedral where the compact was sealed. Once more hustle, bustle, and rush. The wedding breakfast is eaten. Gown changed; trunks packed; tearful, hurried good-by's, are said. Amid the shouts of good wishes, and showers of rice she finds herself stowed away on the express *en route* for Canada.

It all actually happened! Now a memory to be taken from the recesses of the mind, as the wedding gown from its folds of lavender. A recollection so real; a picture so vivid; the details of which were painted in the brightest hues. She dwells in thought upon the journey, alone as it were, for all seemed changed in a few short hours.

On, on rushed the train, through changing scenes. She the bride of a few hours, with heart overflowing with happiness is seated by the side of the man of her choice. Chosen in preference to all others claiming her hand. The one to whom she had given without reserve, her life, body and soul, until death—for whom she had left lovers, home and country without questioning.

In thought the journey is continued. A strange land has been entered—the Queen's country. A "newness," "foreignness" pervaded everything. Officers and civils alike appeal to her as distinctly belonging to another country, whose manners and customs were unlike those found in the States.

The difference was marked. A few hours before reaching this beautifully strange and fascinating country, she had gazed with pulse thrilling on the beauties of the great Niagara with the grandeur of her magnificent Falls. Now in this vast undulating country, with its fertile lands, fruit stored in golden piles beneath the trees, she sees in all about her a peaceful prosperity. A contentment and restfulness steals over the young wife; she raises her voice in thankfulness to God for bringing her under the kind protection of the flag, the Union Jack, representing the Queen's country and Canada.

She recognizes and accepts with joy the duty she owes the flag! the country! the Queen! under whose dominion she has come, and whose land shall henceforth be called *home*.

TORONTO, ONT.