

How Science Safeguards the Trek Back to School



Checking Up the Millions of Pupils to Cure and Prevent the Many Childhood Maladies.

SHORTLY after Labor Day of each year millions of American school children begin their annual trek back to their schools which have been silenced throughout the Summer. It is a vast army that is on the march throughout the length and breadth of the land, some 22 millions of boys and girls between the ages of five and 20 years. In the rear ranks of this great army are about two millions of children who are under seven years of age, representing nearly 40 per cent of that age and class in all the United States. It is this important division, as Gaylord W. Graves points out in the health magazine, Hygeia, which comprises beginners and first graders, supposedly unspoiled and expected to atone or compensate for all the defects and mistakes of their older brothers and sisters, if not for the sins of their parents.

Among these children who are in the kindergarten and first grade are hundreds of thousands who are the victims of various ills, due often to neglect. Some may have enlarged neck glands and recurring discharges from the ears as a result of scarlet fever. Others are short of breath and are subject to "growing pains." The mouths of others are filled with neglected and disintegrating teeth, while still others are cross-eyed, bow-legged or flat-footed.

"There is probably no more neglected age in childhood," says Mr. Graves, "than the preschool period. Infancy is safeguarded because of its unique helplessness, and the older child when he speaks most effectively for himself. The child entering school for the first time is going into a new realm. For a time he will be 'all up in the air' so to speak. His take-off, like that of the aviator, calls for a carefully checked-up motor, the best possible fuel supply and lasting safeguards.

"The child of the runabout age, however, has unexplained fevers, runs through measles and whooping cough



Left: Examining the Throat of a School Child in a Test to Remedy Defects of Speech and to Discover Any Inflamed Conditions Due to Dusty Air.

Right: Ascertain the Weight of a School Child Which is Regarded as a Sure Index to the State of Health.

only natural by a great many parents." According to figures of the New York State health department, cited by Dr. Josephine Baker and by Dr. H. D. Chapin, of the entire 22 million school children in the United States, one per cent are mentally defective; more than one per cent have heart disease; five per cent have or have had tuberculosis (an estimate far too low to include all de-

How Sunshine Is Recorded

A NEWLY invented contrivance for recording sunshine not only registers the intensity of sunshine but its duration during the day. A glass ball serves the purpose of a lens, concentrating the solar rays upon a strip of paper placed in a convex holder beneath. The ball acts as a burning glass, the point of its focus moving along the strip as the sun travels across the heavens.

When the sun shines all day long, a mark which is a continuous line is burned on the strip. When clouds obscure the sun, the burned line is interrupted.

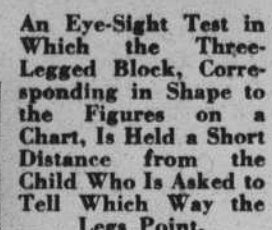
Measurement of the burned mark shows the duration of sunshine for that day, and the hour and minute periods of sunshine.

The Glass Ball Concentrates the Solar Rays on Movable Strip of Paper Into Which Is Burned a Line to Register Sunshine.



Blue Eyes and Hay Fever

IF a census of the world's sufferers of hay fever were taken, it would reveal that only a minority of cases do persons who have brown or very dark pigmentation of the iris (surrounding the pupil of the eye) suffer from true hay fever. This statement is in accordance with the discovery recently announced by Mr. Harry Pickup, who has made extensive researches to find a means of providing definite relief and immunity from this malady. This investigator explains that during the spring and summer certain stellar or cosmic radiations reach the earth that are absent during the winter. These rays, beyond the ultra-violet range are responsible for the rise in sap in plant life, and towards midsummer they become extremely penetrative and under certain circumstances irritant, and in places even lethal to plant and animal life.



An Eye-Sight Test in Which the Three-Legged Block, Corresponding in Shape to the Figures on a Chart, is Held a Short Distance from the Child Who is Asked to Tell Which Way the Legs Point.

time would do much toward the elimination or diminution of physical defects, and place him in a sound physical condition upon school entrance. . . . Any material reduction in the percentage of physical defects found in school children and a betterment of their general well being must come through the care of the children before their entrance into school."

Dr. Chapin, noting that there are about half a million children of preschool age in New York City, has stated that "all of these should be examined twice a year in order to recognize any condition or defect that can usually be corrected at the start."

The business of being a school child today is wholly different from what it used to be. For one thing, it is much less hazardous. For another, the child's expectation of health and good physique in later life is greatly enhanced. The modern child is scientifically handled and scientifically fed, from birth onward.

Consider the important matter of eyesight. Fifty years ago, if a child was nearsighted, the fact gained little or no attention. Children were practically never seen wearing glasses, though they might need them. Nowadays it is realized that nearsight may be due to a disease (its cause not even yet understood) which changes the shape of the eyeball, making it oval instead of spherical as it ought to be. There are of course many other eye troubles which, when they manifest themselves in children, demand prompt attention by the oculist.

In well-managed schools today, as much attention is given to the physical welfare of the children as to their mental training. Not only their vision but their hearing also is tested by qualified experts.

When defects of hearing or of eyesight are found, means are taken to remedy the trouble if possible, or to prevent it from getting worse as the years go on.

Special attention is bestowed upon the teeth. If the temporary teeth are not kept in good order, the permanent ones that replace them will not be sound. This is a fact not at all generally understood.

The school child of today is a scientific product. Certain foods are added to the diet at prescribed ages. In selection of these foods, regard is had for their content of vitamin A, vitamin B, and others, which have relation to the infant's body needs for health and growth.

Much less than fifty years ago such ideas had no place, not only in the minds of parents, but not even in the minds of physicians.

Making a Chemical Flower Garden

CHEMICAL flower gardens, which may be very ornate decorations for the home, can be grown by preparing the following mixture:

- Six tablespoonfuls of salt.
- Six tablespoonfuls of bluing.
- Six tablespoonfuls of water.
- One tablespoonful of ammonia water.

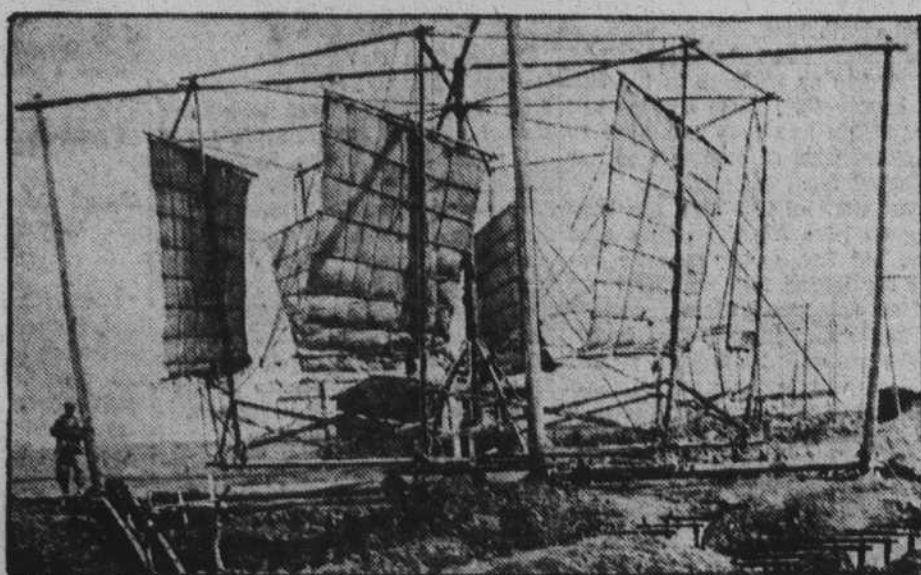
These four ingredients are first thoroughly mixed and then poured over a piece of coal or coke which has been placed in a broad and shallow glass dish. In case the coal or coke is not readily at hand pieces of a brick can be substituted.

After the pieces of coal, coke or brick have become thoroughly saturated with the chemical mixture, pour on them a few drops of red, blue and green ink to give the chemical flowers their colors.

These chemical flowers are formed as the result of a capillary phenomenon involving the tendency of ammonium salts to "creep." The saturated solution deposits crystals around its edges and upon the clinker where the evaporation is greatest. The crystals are porous and act like a wick, sucking up more of the solution by capillary action.

A coral-like growth soon begins to spread over the pieces of coal, coke or brick and grows very rapidly. The edges of the dish containing the chemical flowers should be rubbed with vaseline to prevent the garden from growing beyond its bed.

The Sea as a Source of Salt



Making Salt in China Where Primitive Windmills Are Used to Pump Sea Water into Ponds and Evaporated by the Heat of the Sun, Leaving Salt as the Residue.

SALT is mostly derived from sea water, evaporated by the sun in great shallow tanks. In former times nearly all the salt of commerce was obtained by this method. There is a quarter of a pound of salt in every gallon of sea water and, according to an authoritative estimate, the ocean contains four and a half million cubic miles of salt, or fourteen and a half times the bulk of the entire continent of Europe above high-water mark.

Salt-making by solar evaporation was practiced extensively in New England long after the Revolution, and until the product thus derived from the sea was driven out of the market by cheaper salt from salt springs in the State of New York.

Even at the present time it is produced by this method on a large scale in California, where sea water is admitted to shallow ponds, when the tides are highest each month, usually at the period of the new moon.

The ponds have gates which automatically open when the water runs in, and close when the tide ebbs. The water is

lifted by archimedean screws operated by windmills or gasoline engines, and then allowed to pass by gravity through a series of pools, becoming more and more concentrated until it forms salt crystals.

Will Alcohol Take the Place of Soap?

ALCOHOL may take the place of soap if a new German process now being commercialized in America is as successful as the promoters hope.

The higher alcohols are prepared by the hydrogenation of fatty acids, accomplished by suspending a finely divided nickel catalyst in the hot oil and passing hydrogen through it, under pressure. The alcohols so produced are saponified by treating with sulphuric acid, the finished product being in the form of the sodium salt.

The sulphuric esters of the higher fatty alcohols have all the advantages of soaps and apparently none of their

The Hillside House That Has Its Garage in the Garret

A MODERN home of five rooms picturesquely perched on the side of a steep California hill presents an anomaly in architecture. The garage is in the garret!

The site of this house was chosen by the owner because of the unsurpassed view it afforded of the Bay of San Francisco. It is surrounded by redwood trees and borders on the water that overlooks the famous Golden Gate.

Since this house was built with its front toward the bay, for the sake of the magnificent view afforded, and its back to the road, the steepness of the hill brought the top of the structure on a level with the road that passes in the rear. Thus the lay of the land offered a solution of the problem of where to build the garage. The attic made the

ideal location, as the pronounced slope of the hillside rendered it practically unfeasible to construct a separate garage etc. where on the lot.

Steps ending at the side of the road lead down to the entrance of the house, which is one story beneath the garage. From the basement to the garage the house is four stories high.

A Five-Room House Built on a Steep Hillside So That the Attic Is on a Level with the Road and Becomes a Garage.

