

the better the soil's intake of water. Worst conditions obtain when overgrazing or fire have laid the soil bare. That is when the surface particles pack together under the pounding of raindrops and form a tight crust, which rolls further precipitation off almost as well as a tile roof, piling into the creeks and rivers to gorge them into destructive floods.

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## PUBLIC HEALTH

## Guard Health of High School Children

► "GUARD the health of boys and girls of high school age who are combining school with part-time jobs, who are working during vacation, or who are entering full-time employment."

That is the main theme of the May Day—Child Health Day platform of the U. S. Children's Bureau for this year.

First step parents can take to follow this advice is to have son or daughter thoroughly examined by the family doctor before starting on the job. The doctor may find some unsuspected health defect which would make it most unwise for the child to take on the extra strain of even a part-time job. If the doctor gives an okay on the health score, he probably will also give some advice about the type of work, and hours which the particular boy or girl can safely follow.

The average boy or girl of this age needs 9 or 10 hours of sleep every night, the U. S. Children's Bureau states. Parents are going to have a tough job many times in enforcing this rule. Every effort should be made to see that these older boys and girls do not impair their health by skimping on sleep.

By the time a boy or girl is old enough to start working, he should know the rules of good diet and know them so well that he follows them automatically. Parents may, however, need to drop a few tactful reminders about the importance of milk, fruits and vegetables and whole grain bread and cereals. The meals eaten at home should be planned each day to make up for any deficiencies in the meal or meals eaten away from home.

Posture also needs watching. Sitting or standing continually in a bad posture, stooping over a work bench for many hours, may result in a curved spine. Boys and girls of this age should not continuously use one set of muscles over and over for many hours daily.

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## PUBLIC HEALTH

## Examination Urged

The more than 3,000,000 children employed during the coming summer should be checked up on carefully before work certificates are granted.

► A PHYSICAL examination of every boy or girl should be made before he or she is granted a work certificate, Miss Katharine F. Lenroot, chief of the U. S. Children's Bureau, declared at a press conference.

The "special measures" for the protection of working boys and girls of high school age called for in President Roosevelt's proclamation of May 1 as Child Health Day were explained at the conference.

Under the stimulus of war, more than 2,000,000 boys and girls between 14 and 18 years of age were employed as of October, 1942, the Children's Bureau estimates. More than 3,000,000 were employed during the 1942 summer vacation. An even larger number is expected to be at work this summer.

The physical examinations, Miss Lenroot explained, are needed to make sure that a child with defects of vision or hearing, with incipient hernia, or with unsuspected tuberculosis or heart disease, is not subjected to work which will further impair his health. Many such children should not work at all. Others might

work in certain jobs under careful supervision.

Too long hours of work are another health hazard to boys and girls of high school age. The child labor laws of 42 states now have a maximum work week of 48 hours or less for workers up to 16 or 18 years in a varying range of occupations. No child under 18, the Children's Bureau maintains, should be permitted to work more than eight hours a day or 48 hours a week either on farms or on other jobs.

Part-time jobs after school should be limited so that the combined hours of school and work do not exceed this total, except that as school is likely to be different from a job and less strenuous, some boys and girls of 16 and 17 may be able to put in a total of 9 hours a day on school and job together.

Some jobs have basic health hazards, such as exposure to lead, carbon disulfide, chlorinated solvents and benzol, which Miss Lenroot pointed out, are more dangerous to boys and girls under 18 than to other workers.

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## ENGINEERING

## Walls of the Future

Homes may be built with walls of glass containing light-polarizing material in a sliding plate so that wall can be made opaque or transparent at will.

► HOMES of the future with sliding glass partitions that can be made transparent or opaque at will were envisioned by Dr. Alexander Silverman, head of the University of Pittsburgh chemistry department, in an address before the meeting of the American Ceramic Society in Pittsburgh.

By sandwiching light-polarizing material in glass, then crossing two plates in a double wall construction, an opaque partition will result. When one of the plates is slid back, the partition will become transparent, permitting light to stream in.

Colored plate glass walls with artistic

continuous metallized decorations was another possibility cited by Dr. Silverman. Electricity passing through the decorations would heat the room. Glass floors could be metallized like the walls or glass foot-warmers designed as has-socks could be used. If additional heat were necessary portable stoves of artistic metallized glass might be designed.

"A room at sixty degrees, insuring warm feet and uniform radiation toward the body from all sides, would be more comfortable," declared Dr. Silverman, "than today's home at seventy degrees or higher."

Glass construction combined with

heating elements can also have built-in lights, thus producing attractive heating and illuminating effects. Tempered glass doors, either clear or opaque, may lead from one room to another and cover cabinets and closets.

Won't the home-owner be nearly blinded by the glare from this glittering glass interior? Dr. Silverman answered with a definite "no." By the recently developed treatment of sheet glass to produce thin etched films only about a molecule thick, almost all reflected light glare can be eliminated.

Although glass plates can be used for both interior and exterior construction, glass brick and hollow tile are likely to have increased use also.

"The blocks will be produced in various colors," Dr. Silverman predicted,

"opaque, translucent, transparent."

Artistic design will evolve from the more utilitarian approach now used in modern factory construction.

Glass wool will be much more widely used for insulation. It is constantly being made lighter and is now available in a form weighing only a half-pound per cubic foot. A four-inch layer of glass wool has the heat insulating value of a fourteen-foot concrete wall, it is claimed.

"In the temporary housing provided for our Armed Forces in the Arctic regions, porous glass materials, especially wool, are employed to keep out the intense cold," Dr. Silverman pointed out.

Glass fabrics will also find increasing use in motor generators, in cables, and as battery insulators.

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#### PHYSIOLOGY—ENTOMOLOGY

## Quick Change Explained

Speed of color shifts in chameleon or eel is determined by skin's pigment-containing cells, not by nerve impulses or gland secretions.

➤ WHEN a chameleon flashes from brown to green in a few seconds, or an eel more sluggishly takes several hours to shift from dark to pallid in skin hue, don't seek the cause for this difference in rates in the nerves of the one animal or the gland secretions of the other, Prof. G. H. Parker, Harvard University zoologist, told the American Philosophical Society at its meeting in Philadelphia.

Quickness of color change in some animals, slowness in others is determined primarily by the skin's pigment-containing cells themselves, he declared. This is contrary to the zoological doctrine most widely held at present, which states that the quick-changing animals do the trick by means of nerve impulses, while the ones that alter their colors slowly depend on hormones or gland secretions.

This opinion, Dr. Parker said, was based on the examination of only a few animals, and falls down when a score or more species, a wide range of color-changing speeds, are examined. As a matter of fact, the quick-changing chameleon depends on hormones, the slow-changing eel on nerves.

Slowness of response by color cells to either hormone or nerve stimulus has an analogy in a similar slowness in mus-

cle cells, Prof. Parker pointed out; a snail's muscles simply cannot move otherwise than very deliberately, while a flea's muscles always contract with a lightning-like snap.

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## Time Changes With Age

➤ THE CLASSIC joke, that married people live longer—or maybe it just seems that way, has a real scientific basis. Biologically speaking, time depends on the physiological and psychological state of the organism concerned, rather than on ruler-like measurements around the rim of a clock, Pierre Lecomte du Noüy, of the University of Paris, told the meeting. Even a relatively simple biological process, like the formation of a scar or wound, goes faster in a young person or animal than in an old one; and there is a definite mathematical formula for expressing the rate of change as age advances.

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## Clover Pest Hurts Potato

➤ HOW AN insect pest that normally infests one crop, clover, becomes a carrier of a serious virus disease to another

crop, potatoes, on which it ordinarily does not feed, was related by Dr. L. M. Black of the Rockefeller Institute for Medical Research at Princeton, N. J.

Dr. Black summed up the situation:

"The potato yellow-dwarf disease sometimes causes serious losses to potato growers in the northeastern states of the Union. Potato yellow-dwarf is caused by a virus which is introduced into the plant by an insect. None of the common insects on potatoes are able to infect them with the virus, but an insect very common in clover fields and pastures transmits the virus efficiently.

"This insect is the clover leafhopper, which under certain conditions occurs in potato fields in large numbers. It plays an important part in the life history of the virus because, once the leafhopper picks up the virus, it retains it for a long time and is able to infect many plants.

"Suppose that a clover leafhopper feeds on a diseased ox-eye daisy, the common reservoir of the virus. The insect will be unable to infect any plants for the following week, but after that it may infect plants as long as it lives. It may even keep virus in its body through the winter and infect plants the next spring."

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**STEEL FOR WAR**—Shoveling dolomite into the furnace at a United States Steel Corporation plant preparatory to charging scrap for another heat of high-grade alloy steel. With each charge, 70 tons of alloy steel are produced.