GEOPHYSICS

Robots To Study Ocean

Current surveys for the Navy will be made by floating boat-like metal buoys with radio masts fifteen feet tall. Stay at posts during bad weather.

➤ OCEAN CURRENT surveys for the Navy will be made this spring on the Atlantic Coast by floating radio robots—boat-like metal buoys with radio masts fifteen feet high. A streamlined meter containing a compass will be suspended from each buoy to record the velocity and direction of the current. It automatically broadcasts this to the mother ship. At the receiving end, the radioed impulses of the meter are recorded by a robot mechanism in groups of three; the distance between two of the "ticks" giving the velocity and the location of the third between them giving the direction of the current.

Dr. L. O. Colbert of the U. S. Coast and Geodetic Survey told members of the American Geophysical Union meeting in Washington, D. C., that the new radio current meter decreases the number of vessels needed for such a survey as simultaneous observations can be made at several current stations. Another advantage is that the streamlined current buoys can remain at their posts during bad weather and in strong currents with less difficulty than a ship anchored under similar conditions.

Science News Letter, May 1, 1943

When a Snowbank Melts

➤ WHAT HAPPENS between the time a deposit of snow in high altitudes begins to melt and the time the water appears in creeks and rivers was reported on at the meeting of the Union by A. R. Croft and R. B. Marston of the U. S. Forest Service.

Only meager knowledge is available about the part played by snow in watershed recharge, snow melting rates and the factors that influence them, movements of melted snow water through the snow, and the overland flow beneath snow on bare soil surfaces.

These questions were studied on a 99-acre tract of land in the Wasatch Plateau in Central Utah. Underground flow was included as well.

Melting began the last of April. The melting rate from then on varied from none to nearly two inches a day until the first of June. Practically all water entered the soil and its vegetation cover. Water appeared 36 inches below the surface in 12 days and in 16 days was 36 to 72 inches below the surface. This water was available for summer crops.

When melting is rapid, water flows directly over the surface and very little gets into the soil to be of help to vegetation.

Science News Letter, May 1, 1943

Structure of a Shower

➤ HOW A SHOWER of rain is built, how much of it is absorbed by the soil as it falls, and how much runs off, were the topics of the paper by Leonard Schiff of the U. S. Soil Conservation Service.

The intensities of rainfalls and their order or pattern exert a marked influence on the infiltration or absorption rate, he said. Ground surfaces become sealed by the impact of rain, lessening the rate of infiltration. "Drop size usually increases with intensity, resulting in greater soil dispersion and reduced infiltration."

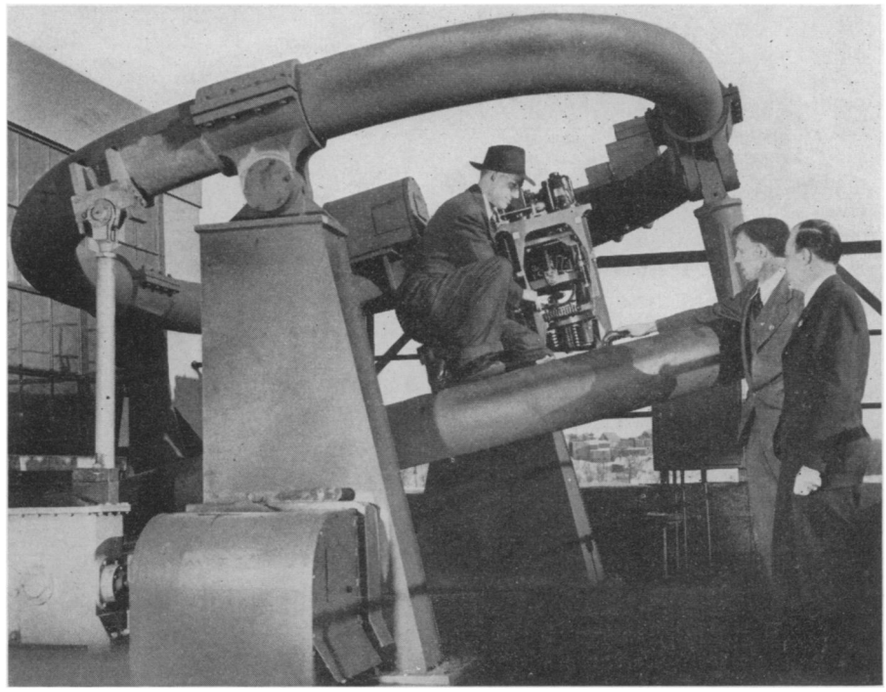
In studies of surface runoff and infiltration made by the speaker, storms were classified according to whether the rainfall was heavy or light, and also according to the order of occurrence of rainfall intensities. If high intensities occur early in the storm infiltration may be high and runoff low. Low intensities that occur at the outset for a considerable period cause the soil to approach its capacity and heavy rains following may result in considerable runoff.

Science News Letter, May 1, 1943

Bushes Help Soil

➤ WATER falling as rain or snow soaks down into the soil in larger percentage when there is a ground cover of mixed bushes and grass than when the cover consists of grass alone, Lowell Woodward of the U. S. Forest Service told his fellow-scientists. He reported on detailed quantitative studies of infiltration rates on various types of soil, under different kinds of vegetation, in a typical pastured forest area in Utah.

In general, the denser the plant cover



MOTION TEST—All the ups and downs of a warship ploughing through high seas have been built into this tester for naval equipment. General Electric engineers are interested observers as one of their colleagues risks seasickness in riding with the equipment under test.

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.

Science News Letter, May 1, 1943

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.

Science News Letter, May 1, 1943

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.

Science News Letter, May 1, 1943

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 hassocks 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