

MEDICINE

Outline Seven-Point Anti-Arthritis Program

► A SEVEN-POINT program for lessening the chances of coming down with arthritis has been drawn up by the Arthritis and Rheumatism Foundation.

The program is for farmers, who are attacked by arthritis more than people in any other line of work. Here are the seven points:

1. Do not overdo more than you absolutely must.
2. Get sufficient rest.
3. Stop for a breather several times during the day.
4. Prevent wear and tear on the muscles by warming up before a day of strenuous activity. Simple setting up exercises will do.
5. Start the day with the lightest chores.
6. Try to overcome worry and unpleasant situations.
7. Do not forget regular medical check-ups.

The aches and pains of arthritis afflict almost a fourth, 23%, of American farmers, the arthritis foundation has found. Why this disease attacks so many farmers is not known. Exposure to the elements may have something to do with it.

Hard physical labor over the years without let-up and lack of relaxation may also be involved. Fatigue and worry are two of the greatest contributing causes of arthritis.

No cure for arthritis exists. Numerous drugs to help almost every sufferer are available, however. In 70% of the cases of rheumatoid arthritis, which is the most destructive form of the disease, crippling can be prevented if treatment is started early enough. So, while not every ache or pain means arthritis, persons with the following symptoms are urged to see their doctors:

Persistent morning stiffness, pain and swelling of the joints, persistent muscle aches and pains, unexplained weight loss, fever and weakness, and undue warmth of a painful joint.

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TECHNOLOGY

Computer Makes Coal Mines Safer

► TWO YEARS' EXPERIENCE with a computer that solves mine ventilation problems have proved the device can improve coal mine ventilation systems and save large mining concerns time and money, G. E. McElroy, chief of the Bureau of Mines ventilation section, Pittsburgh, said.

The machine, an electrical network analogue computer, can figure out just how a proposed change in a system of ventilation will really work.

In each of the six mines for which the computer has been used, it has eliminated the need for costly trial-and-error procedures. The \$18,000 instrument kept one mine owner from spending \$30,000 on a

proposed change of main fans by proving the change would not produce the desired results.

Mr. McElroy said the computer can detect weak points in ventilation systems, thereby encouraging mine operators to improve them before serious trouble develops.

Coal mines, which have extensive networks of passageways, frequently require complex ventilation systems to remove explosion-producing methane gas and give the miners fresh air. Ordinary mathematical methods of working out effective systems have been considered too cumbersome and tedious to be practical.

Most mine operators have had to be content with trial-and-error methods, trying out alternative systems until a seemingly effective one was found.

Now, however, mine operators can learn in advance just how well any proposed system will work.

The computer was developed by Prof. Malcolm S. McElroy, former head of electrical engineering at Cornell University.

Science News Letter, September 1, 1956

HORTICULTURE

Thornless Blackberries Bred for East Coast

► THORNLESS BLACKBERRIES that will grow hardily east of the Rockies are being developed by U.S. Department of Agriculture horticulturists. They should be ready in about five years for garden use.

Drs. D. H. Scott and G. M. Darrow, principal horticulturists, and D. P. Ink, biological aid, of the Plant Industry Station, Beltsville, Md., reported to the American Society for Horticultural Science meeting in Storrs, Conn., success in creating the first genetically thornless blackberries that give promise of growing successfully in the eastern and Midwest areas of the nation.

Breeding from the Merton Thornless variety that was discovered among seedlings in Britain, the American scientists crossed it in 1948 with existing kinds that grow successfully in American climate. In the second generation, one out of 35 seedlings proved to be thornless. These are now being propagated for more extensive growing tests with the hope that they will prove to be suitable for garden use.

Thornless blackberries developed on the Pacific coast have not been hardy enough for use in the rest of the country.

A new kind of grape, whose parents are the variety used in California, *Vitis vinifera*, and a resistant native grape of southern U.S., *Vitis rotundifolia*, was reported by Dr. Haig Dermen of the U.S. Department of Agriculture's Plant Industry Station, Beltsville, Md. The sterility that occurs in previous crosses was remedied by using colchicine for doubling the chromosome number, making what is called a colchiploid hybrid.

This grape of superior quality is now being propagated for testing and in about five years may be ready for introduction, if all goes well.

Science News Letter, September 1, 1956

IN SCIENCE

MANPOWER

Warns of Trap in Competing With Russians

► IN SOLVING the problem of the shortage of scientists and engineers, the United States should be careful "not to be caught in the trap of trying to compete with the Russians," Dr. E. R. Piore, vice-president for research of AVCO Manufacturing Company, formerly chief scientist for the Office of Naval Research, has warned.

"Our first concern should be to understand what we are trying to do in the United States and then tailor our requirements in manpower to those needs," he urged.

The "greatest need," Dr. Piore told the 1956 National Telemetering Conference in Los Angeles, is "quality and breadth of training."

He suggested more use of upgrading less well-trained persons as one aid in the shortage problem. However, he said, there is still a need for "imaginative people" to lead the large group of existing engineers.

Dr. Piore also warned that, just because there are shortages of scientists and engineers, funds for science and technology should not be reduced. Doing so, he charged, "would wreck our industrial expansion and weapon development."

Science News Letter, September 1, 1956

HOME ECONOMICS

Moth Protector May Harm Clothes

► SOME PLASTIC HANGERS melt in a hot atmosphere, as in an attic in summer, when paradichlorobenzene, a popular moth preventive, gives off its vapors nearby.

Complaints from homemakers led the U. S. Department of Agriculture's Agricultural Research Service to find out why plastic hangers sometimes stick to clothes that have been hung away for summer storage.

Combination of the moth-repelling vapor and temperatures greater than 110 degrees Fahrenheit were found responsible for softening the plastic. At 80 degrees Fahrenheit the plastic would take months to soften in the chemical vapor, but at 130 degrees, a temperature not unusual in a hot attic, the investigators saw the plastic soften and soak into the garments in a few hours.

Paradichlorobenzene is placed in solid form near clothes to be protected from moths. It vaporizes without turning liquid. Many prefer it to "mothballs," which are made of naphthalene, because the odor is less persistent. Naphthalene, in the Department of Agriculture's study, does not have the softening effect.

Science News Letter, September 1, 1956

CE FIELDS

HORTICULTURE

Fast Breathing Banana May Aid Ripeness Test

► THE FASTER a banana breathes, the softer it is getting.

Scientists in London, determined to find a banana ripeness test, think they have found a possible clue to the puzzle. Up to now, they said, judgment of banana ripeness has depended on experience and a good eye.

However, ripening precedes any change in the fruit's color.

It has now been found, they reported to the Food Investigation Board in London, that the change in hardness follows fairly quickly after the increase of respiration.

"The discovery," they said, "will be followed up in an attempt to achieve a definite test of the condition of the fruit before it is shipped."

Science News Letter, September 1, 1956

NATURAL RESOURCES

National Park System Has 40th Anniversary

► THE NATION marked the 40th anniversary of the National Park Service with the start of one of the most important decades in National Park service history.

The reason: Mission 66.

Mission 66 is turning the attention of conservationists and Park Service officials from the 40th to the 50th anniversary. That is the date Mission 66, the biggest improvement program in Park Service history, will be completed.

By then roads in national parks will have been improved and housing facilities increased, although moved away from scenic areas, to accommodate one of the nation's fastest growing enterprises.

Since establishment of the National Park Service on Aug. 25, 1916, there has been an almost continuous increase in visitors to national parks, with the exception of the World War II years.

This is attributed partly to efforts of the Service's first director, Steven T. Mather, who did much to stimulate public consciousness of the National Park System during his 12 years in office from 1917 to 1929. Mr. Mather helped launch the park interpretive program that, with its museums and scientist-guides, has been an educational boon to tourists.

During Mr. Mather's administration, the Park System was largely confined to western United States. Under the Reorganization Act of 1933, President Roosevelt integrated into the system many monuments and reservations in the East and South that had been administered by the U.S. Forest Service and War Department. This made the Park

System truly national.

During World War II, park attendance dropped from 21,000,000 persons annually to a low of 4,000,000 in 1943. Parks were practically stripped of personnel and many facilities could not be maintained.

However, attendance jumped back to its old level right after the war, and soon swelled under the influence of one of the greatest travel booms in history. It hit a peak of 50,000,000 last year.

During the past 11 years Federal park appropriations have been small, but the recently launched Mission 66 program, which anticipates a Federal expenditure of more than \$17,000,000 on Yellowstone Park alone, should make up for this.

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NUTRITION

Government Agency Devises Sandwich

► A FISH SANDWICH has been devised by the Fish and Wildlife Service.

The home economists of the Service call their new development a "toasted tuna French loaf."

Here is the recipe:

- 1 can (6½ or 7 ounces) tuna
- ¼ cup butter or margarine
- 1 teaspoon prepared mustard
- 1 small loaf French bread
- 1 tablespoon grated onion
- 1 cup grated cheese
- 2 tablespoons chopped sweet pickle or sweet pickle relish.

Drain tuna. Flake. Cream butter and mustard. Cut bread in half lengthwise and remove a small amount of the center. Spread the bread with mustard-butter. Combine remaining ingredients. Fill bread with tuna mixture. Cut loaf into 12 slices and wrap in aluminum foil. Bake in a very hot oven, 450 degrees Fahrenheit, for 30 minutes or until heated through and cheese melts. Serves six.

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TECHNOLOGY

Giant "Brain" Becomes Signal Corps Supply Clerk

► SUPPLIES for the Army Signal Corps the world over will be managed by a giant electronic "brain" now in operation at the Army Signal Supply Agency, Philadelphia.

The electronic supply clerk collects and memorizes 8,000,000 different facts on more than 150,000 different electronic items required to keep the Army's global electronic-communication systems operating.

The computer can make 37,500 changes to these facts per day, uses the facts to process 6,000 orders for supplies received daily, and remembers all orders received when stocks are unavailable and fills the orders when stocks are received.

The computer was designed and built by the International Business Machines Corporation.

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TECHNOLOGY

Faster, Safer Sail Designed

► ONE of man's oldest methods of transportation has been revised and improved by a General Electric company engineer of Schenectady, N. Y.

A faster, safer sail for boats, designed by Burnice D. Bedford, a research engineer who holds 92 patents, has outperformed conventional sails in tests on upstate New York lakes.

The rectangular canvas is stretched across an H-shaped frame and suspended between two vertical bars.

Instead of swinging outward like a regular triangular sail, Mr. Bedford's sail swings upward from the bottom like a kite in a strong breeze.

This means that, instead of making a boat lean with the wind, Mr. Bedford's rig has a lifting action. A dinghy that could carry only 72 feet of conventional sail can carry 120 feet of canvas when it is on an H-shaped frame.

The sail can be placed at any angle to the wind without a change of course. A skipper can "spill" a heavy wind as much or as little as he wishes.

This reduces the over-turning movement characteristic of craft equipped with triangular sails.

In tests, the sail enabled a 12½ foot dinghy to keep pace with much larger boats. Mr. Bedford believes the rig can be adapted to any small or medium sized racing sailboat.

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NUTRITION

Fertility Increases During Starvation

► STARVING MALES are more fertile than well-fed ones.

Experiments showing that this is true for dogs are reported by Drs. Harry A. Teitelbaum and W. Horsley Gannt of Johns Hopkins University, Baltimore, in *Science* (Aug. 24).

"Although we are fully aware of the potential pitfalls involved in interpreting human behavior on the basis of data derived from other species, the sociological implications of our findings are evident," the scientists point out.

It may be, they suggest, that during the early period of starvation in human or other populations fertility increases as a "compensatory process" to maintain stability of the species.

Sperm counts, both total and per cubic centimeter, increased in four dogs during ten days of starvation. After the starvation period, the sperm counts dropped. Low sperm counts have been associated with subfertility in men.

The relationship between state of nutrition and fertility is quite controversial, the scientists state, pointing to conflicting reports in the past.

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