SPORTS

Four Minute Mile Running Record Possible

➤ WHAT ARE your chances of breaking a running record? If you are in training, you can find out by checking your speed against the curve which has been mathematically calculated by Dr. Alfred W. Francis of Woodbury, N. J., to represent the cream of the crop of official world's records. With the aid of these statistics, Dr. Francis predicts (*Science,* Oct. 8) that the "hypothetical four minute mile" never yet officially attained, is an imminent possibility.

Because a runner can maintain a greater speed for a shorter span, records for various distances can not be compared as such to determine which is the better speed. Dr. Francis analyzed the official world's records, and correlating speeds with distances, plotted a curve which is representative of the greatest speeds which have been attained.

Using Dr. Francis' statistical method, runners can compare their running time, regardless of distance, with the world's best. When properly plotted on the graph, the closer the race comes to the curve, the closer it approaches the world's record. Overtake the curve, and you've broken a record!

In terms of speed-distance correlation, the best recorded speed is that reached by Gunder Haegg in the 5,000 meter race. Because this speed is far superior to that of Arne Andersson, holder of the mile record (4:02.6), Dr. Francis predicts that Andersson's record should soon be broken and a "four minute mile" record become a reality.

Science News Letter, October 30, 1943

MEDICINE

Viscose Tubing for Blood Transfusions Saves Rubber

➤ USE of heavy viscose tubing instead of rubber tubing in blood-transfusion apparatus results in fewer reactions dangerous to the patient and saves rubber, Henry Naftulin, Dr. A. M. Wolf and Dr. S. O. Levinson of Michael Reese Hospital, Chicago, report. (*Journal, American Medical Association,* Oct. 9)

Cleaning rubber tubing for transfusion apparatus is difficult, and the drastic procedure necessary eventually destroys the elasticity of the rubber, the quality which makes it desirable for transfusion work. Incomplete cleansing of the rubber tubing is believed a major cause of the chill and fever that sometimes follow transfusions.

Heavy-walled viscose tubing is sturdy enough to be used for transfusions, and this cellulose plastic costs so little that it can be used once and discarded. In a total of 1,137 blood transfusions given through this tubing, there were only eight reactions, three of them allergic. The Chicago doctors find this a material decrease from the rate with rubber tubing.

Science News Letter, October 30, 1943

PSYCHOLOGY

Old Idea of Sovereignty Must Yield to New Concepts

➤ THE OLD-FASHIONED idea of sovereignty will have to give way to newer concepts of the power of the state, more in accord with the new science, the new technology and the new reason and reflection from which our new civilization is formed, Dr. Charles E. Merriam of the University of Chicago, told the opening session of the Fourth Conference on Science, Philosophy and Religion in New York.

The sovereignty that was the rational defense of irrational deeds is dead, Dr. Merriam said. Within any sane nation, it has always been limited by justice, liberty and general welfare. If a governing body legislated that all blue-eyed babies should be put to death, that might be the law, but at that point psychiatrists would be needed, he contended, rather than jurists.

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RESOURCES

Rubber-Producing Guayule Processed in California

➤ WILD GUAYULE shrubs are being gathered in southwest Texas by the U. S. Forest Service to contribute to the natural rubber supply needed by the armed services. The quantity which can be collected is small, but it will help. The shrubs will be processed in the government guayule plant in California.

The general area from which the guayule is now being gathered once produced a commercial rubber which was processed in a guayule mill at Marathon. It closed in 1926. Some 2,000 tons of shrubs, it is estimated, may be secured now in rough country surrounding the area harvested for this mill.

First shipments are now being made. Plants and roots both produce rubber; they are gathered and baled together.

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IN SCIEN

MEDICINE

Alkalized Beef Plasma May Be Safe for Transfusion

➤ ALKALIZING beef blood plasma for a short time may be a method for making this a safe substitute for human plasma in transfusions, it appears from a report by Dr. Julian H. Lewis, of the University of Chicago. (*Science,* Oct. 22)

The beef plasma is treated with alkali for one hour at body temperature and then the alkalinity is neutralized. This modified beef plasma saved dogs from what would otherwise have been fatal shock following severe hemorrhage. Whether the alkalized beef plasma can be safely used for human transfusion is not stated. It did not cause reactions in either dogs or guinea pigs as untreated beef plasma would.

Destruction of the substances, called antigens, in beef plasma which would cause reactions is believed due to destruction by the alkali treatment of cystine and possibly other amino acids in the beef plasma.

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CHEMISTRY

Chicken Feathers Salvaged By Treatment with Acids

➤ THANKS to a new treatment, chicken feathers, formerly a waste by-product of chicken-dressing plants, are now going to war, supplementing the inadequate supply of duck, geese and other waterfowl feathers. Feathers are camouflage material in this war, as well as stuffing for sleeping bags and pillows.

The treatment is with a preservative which keeps wet-picked chicken feathers from decomposing after plucking and before processing. Normally they start to decompose in two days or less. Now it is found that if they are thorougnly soaked in a weak solution of two inexpensive acids and dried they will remain in good condition for weeks.

The process was developed by Dr. J. I. Hardy of the U. S. Department of Agriculture. The solution used is 0.55 pound of salicylic acid, 1.1 pounds of benzoic acid, well stirred in 30 gallons of lukewarm water. This treatment does not injure the fluffiness of the feathers.

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CE FIELDS

DENTISTRY

Wear From Toothpaste Or Solutions Measured

➤ IF YOU want to know whether your favorite tooth powder or paste is wearing out your teeth, the National Bureau of Standards has a scientific test. The Bureau now has developed a method to measure accurately the abrasive effects of tooth-cleaning preparations, and also the wearing effects on the teeth, if any, of various solutions used as mouth washes.

In measuring tooth-wear from abrasion or solution, the Bureau uses an "indenter" of diamond hardness developed in its laboratories a few years ago. An extracted tooth is first polished and then scratched with it, making an indentation of known size. It is then polished mechanically with the dentifrice, or dissolved in a solution. The degree of disappearance of the marks indicates the hardness of the tooth, or the wearing effect of the polishing material or of the solution.

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GENERAL SCIENCE

Western Cultural Leaders Meet in Washington

➤ CULTURAL LEADERS in the Western Hemisphere met recently in Washington in a wartime session to consider how best to promote scientific and scholarly cooperation.

The Inter-American Committee on Intellectual Cooperation, under the chairmanship of Dr. Miguel Azorio de Almeida, Brazilian physiologist, is a Western Hemisphere regrouping of the national committees on intellectual cooperation that were organized under the League of Nations a decade ago.

Conferences were held in the buildings of the Pan-American Union and the Carnegie Endowment for International Peace, with those organizations and the Division of Cultural Relations of the State Department cooperating in the program.

Dr. Waldo G. Leland, director of the American Council of Learned Societies, recently named chairman of the American Committee on Intellectual Cooperation, was instrumental in arranging the hemispheric conference.

The American delegate to the meeting was Dr. James T. Shotwell, of Columbia University, honorary chairman of the American committee.

Other delegates were: Dr. Victor Lascano of Argentina, Dr. Julian Nogueira of Uruguay, Dr. Alfonso Reyes of Mexico, Dr. Cosme de la Torriente y Peraza of Cuba and Dr. Oscar Vera of Chile. Dr. Herminio Rodriguez is secretary of the committee. Technical experts present included: Dr. Robert Valeur of New York, Dr. Mariano Brull of Cuba and Dr. Antonio Castro Leal of Mexico.

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NUTRITION

19th Century Buns Had High Vitamin G Content

➤ TWO CURRANT buns and "a pint of good ale yeast" seem to have stumped the experts! Analysis of two buns—one baked in 1863 to celebrate the wedding of the Prince of Wales and the other in 1887 for Queen Victoria's jubilee—reveals an unaccountably high riboflavin (one of the B vitamins) value, E. C. Barton-Wright, T. Moran and H. S. Sarson, three British scientists, report to *Nature* (Sept. 4), British scientific journal. The key to the solution lies in "a pint of good ale yeast."

The probable recipe for the buns is similar to that of the Hannah Glass 1780 recipe which reads: "Take two pounds of fine flour, a pint of good ale yeast, and three eggs beaten, knead all these together with a little warm milk, a little nutmeg, and a little fat, and lay it before the fire till it rises very light, then knead in a pound of fresh butter, a pound of rough caraway comfits, and bake them in a quick oven, in what shape you please, on floured paper."

However, there is a catch. Should you attempt to follow the recipe, you would not obtain the high riboflavin value derived by the Victorians. Because, apparently, a pint of good ale yeast today is not what it used to be in the days of Queen Victoria. The riboflavin value in a pint of good ale yeast in those days far exceeded that of today's. This may be due to the higher specific gravity of 19th century beer. Or it may be inherent in the yeast itself. Nevertheless, beer or yeast, it appears to have been an attractive way for catching up on vitamin intake!

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METALLURGY

New High-Voltage Device Used in Arc Welding

➤ THANKS to a new electric device developed in East Pittsburgh, Pa., better and speedier results are obtained in the process of electric welding of delicate aluminum and alloy steel plates used in warplane construction.

The device is a high-voltage "trail blazer" that cuts an electric path through the air which is followed by the low current that does the actual welding, making it certain, reliable and constant. Low currents must be used in arc welding thin metals or the metals will burn. Without this device it is difficult to start the electric arc and to keep it glowing while the weld is made.

The new device, a development of the Westinghouse Electric and Manufacturing Co., is built into the arc-welding machine. In use the operator flicks a switch holding the tip of the rod near the work. The high-voltage current leaps across the gap and the welding current follows. Both currents keep flowing until the weld is finished.

Science News Letter, October 30, 1943

INVENTION

Heated Ironing Board Invented for Housekeeper

➤ HELPING the housekeeper seems to have been the uppermost thought among Patent Office officials judging from the number of household appliances included in the 592 patents issued during a recent week. A heated ironing board is one of particular interest.

Infra-red ray lamps placed under the ironing board furnish the heat. They are safely housed in a protecting shelter arranged so that the heat is thrown to the under side of the board where it may properly warm the board and its ironing surface. The shelter is ventilated and the heating units are easily replaced.

The ironing surface is a single sheet of perforated material, with some 40% of its area taken by the perforations. This permits the maximum transmission of heat to the covering cloth and to the articles being ironed.

This heated ironing board is used with the ordinary folding stand or in the ordinary cabinet. The patentee, Horace B. Fay of Willoughby, Ohio, has assigned the patent to the Gridiron Steel Co. (No. 2,331,673)

Science News Letter, October 30, 1943