

ATHLETICS—PHYSICS

New Time For 880?

Star athletes looking for a chance to break a world's record on the running track should tackle the 880-yard run.

This suggestion comes not from a coach or trainer but from recent calculations made by Dr. Earle R. Hedrick of the University of California, editor of the *Bulletin of the American Mathematical Society*. According to Dr. Hedrick's diagram of the situation, the record of 1 minute 52 seconds, made in the 880-yard race represents the least worthy performance among the recognized world's record races from the hundred-yard dash to the two-mile run. It is reasonable on this basis to expect somebody to cut five seconds from the present record without setting a new standard of human strength and endurance. On the other hand, it is considered unlikely that anyone will lower the record of 47.4 seconds for the 440-yard curved-track race.

Adopting the rule that fatigue bears a direct mathematical relation to distance traveled, Dr. Hedrick was able to draw a smooth logarithmic curve which tells at a glance what a record performance should be in a race of any distance above 100 yards. The shorter races are not considered because of the relatively great errors due to the time of getting started. In his diagram the mathematician finds that the 220-yard, the 440-yard, and even the 100-mile record all fall nicely on an orthodox line and are thus tentatively assumed to indicate a maximum human performance. At least no record in any other race is better. The 880-yard and mile records, however, run as much as five seconds too high. Inasmuch as the 880-yard distance is the shorter of the two, the deviation here has the most significance of any recorded. Unless there is some physical factor, still unknown, which should enter the mathematical equation, the 880-yard mark looks to be the easiest of conquest.

An important use of this athletic diagram comes in the attempt to evaluate European records based on races run with metric measurement. A 1000 to 1500 meter race, which calls for a degree of fatigue not corresponding exactly to any American race, is thus readily checked and appraised. The suggestion has been made that an athletic prize should be awarded to a runner not for breaking some odd record that happens to be extant, but rather for convincing the sporting mathematician that he can
(Just turn the page)

ELECTRICITY

Cable Works as Push Button

A new type of electric cable for small currents, such as those used for sounding bells and buzzers and for starting and stopping machinery, has been invented by a Hungarian electrical engineer of Berlin, Oscar Nagy. It does away with the necessity of having push buttons at set points, for if the cable is squeezed at any place throughout its length the circuit is completed and the current does its work. This is accomplished by having the wires woven into a sort of loose braid, separated by an elastic non-conductor, which permits contact when pressure is applied.

Many uses are suggested for the new cable. It is expected to find a large use around complicated machinery, where threatened accidents to either operator or material demand instant stopping. Since it can be operated with feet, knees, elbows, or any part of the body, its advantage over ordinary types of switches and levers is obvious. Hidden beneath carpets or otherwise concealed, it is expected to be useful in burglar alarm systems. Strung along trenches, or along the sides of naval vessels, it will enable officers to signal to their men from any point, and by rapid successive pressure messages can be transmitted in ordinary Morse code, making it an emergency telegraph system.

An especially interesting safety application is found in its use in mines and quarries, where a fall or slide of rock automatically sounds its own emergency signal.

Science News-Letter, July 9, 1927

MUSIC

New Bow Plays Four Strings

A new type of violin bow, or rather a new rediscovery of a very old type, which permits the playing of four-part music on a single instrument, has recently been demonstrated in Berlin by a well-known virtuoso, Herman Berkowski. The bow is deeply curved instead of straight, as in the usual modern form, and the strings are left very loose. It resembles the bows shown in medieval pictures of performers on the ancient Celtic chrotta or crewth, the ancestor of the violin. It is stated that the new bow makes possible the rendition of early violin scores which have hitherto been riddles to modern performers because they called for the simultaneous reaching of strings impossible to the straight bow.

Science News-Letter, July 9, 1927

ZOOLOGY

Flood Leaves Fishes Dry

Retreating waters of the Mississippi River have begun to leave in their wake a new set of flood victims—millions of stranded fishes. Letters from residents of states along the lower Mississippi have already been received by the U. S. Bureau of Fisheries asking the bureau to come to the rescue.

The bureau is making plans for an unusually extensive program of rescue work along the lower Mississippi this summer, according to G. C. Leach, chief of the division of fish culture. The rescue crews ordinarily do most of their fish saving in the upper Mississippi region, he said today, but this year the upper Mississippi situation is not expected to be serious, as snowfall has been plentiful and this will tend to prevent rapid drying out of river beds.

Each year, wherever the water is unusually high, adult fish are carried out of the main channel of the river. They spawn in these backwaters, and when the rivers become low, innumerable young fish are left stranded in shallow ponds and depressions that rapidly dry up. Rescue crews catch them in seines and transport them to the river, thus saving the lives of from 100 million to 200 million young fish each year.

Science News-Letter, July 9, 1927

PHYSICS

Hydrogen Atoms Last

Hydrogen, one of the most common of all elements, since it is one of the two constituents of water, may survive as single atoms for longer than hitherto supposed, according to the work of Joseph Kaplan, in the Physics Laboratory of Johns Hopkins University. Ordinary hydrogen gas consists of two atoms joined together to form a hydrogen molecule, but the two atoms may be pulled apart, and in this form it has many properties not possessed by the molecules. For instance, by a method of welding invented recently by Dr. Irving Langmuir, of the General Electric Company's research laboratory, burning atomic hydrogen is used to weld pieces of metal together so that they are as strong as an ordinary single piece. It has been believed that the free atoms were only able to last for a fraction of a second. Mr. Kaplan finds, however, that the atoms may survive as long as three seconds before joining together again into molecules.

Science News-Letter, July 9, 1927

Tune In

On Our Science Radio Talks!

In cooperation with leading broadcasting stations, Science Service presents a weekly radio talk on "SCIENCE NEWS OF THE WEEK"

These are given from the following stations:

KOAC	Oregon Agricultural College, Corvallis, Oregon.
KUOK	University of Arkansas, Fayetteville, Ark.
WABC	Atlantic Broadcasting Corp., New York, N. Y.
WEAO	Ohio State University, Columbus, Ohio.
WBAO	James Millikan University, Decatur, Ill.
WBET	Boston Evening Transcript, Boston, Mass.
WCAD	St. Lawrence Univ., Canton, N. Y.
WDBO	Rollins College, Winter Park, Fla.
WDOD	Chattanooga Radio Company, Chattanooga, Tenn.
WEBW	Beloit College, Beloit, Wisc.
WGR	Federal Radio Corp., Buffalo, N. Y.
WHAS	The Courier-Journal, Louisville, Ky.
WHAZ	Rensselaer Poly. Inst., Troy, N. Y.
WMAL	The Washington Radio Forum, Washington, D. C.
WMAQ	Chicago Daily News, Chicago, Ill.
WOO	John Wanamaker, Philadelphia, Pa.
WRAV	Antioch College, Yellow Springs, Ohio.

Watch the program of the station nearest you to see what time these talks are given. If no station near you gives them, write us, suggesting any station that you think might give them.

SCIENCE SERVICE
21st & B Sts.
Washington, D. C.

MEMORANDUM

This blank space serves a dual purpose. It allows you to clip out the article on the reverse of this page without destroying any other article. It can also be used for notes and the recording of your own observations.

New Time for 880?

(Continued from page 25)

break over the logarithmic fatigue line that is supposed to be the border of human endurance. Under these conditions nobody would know who won a track meet until a report was handed down by the professor of analytic geometry. But the rah-rah boy, hoarsely yelling at a sprinter staggering across the finish line, probably isn't thinking in terms of logarithms.

Science News-Letter, July 9, 1927

They Say

Elwood Street, director of the Community Council, St. Louis, Mo., writes:

That Science News-Letter of yours looks like a bully stunt.

H. L. Mencken reviewing in his American Mercury a new book, "An Introduction to General Biology" by S. J. Holmes, writes:

I believe that biology is a required study in nearly all the high-schools of this great land; if so, its teaching must be in the hands of pedagogues even worse than the average of their quackish order, for biological knowledge, even of the most elemental sort, is surely not widespread among us. For proof of it, turn to the newspapers. Science, of late, has been good news: they discuss it copiously, and with a fine enthusiasm. But save when they simply reprint the excellent articles sent out by Science Service, a Washington news agency, they seldom discuss it with any intelligence. The astronomy encountered in the newspaper headlines is scarcely to be distinguished from that of astrology; the biology is that of chiropractors. When one comes to such subsidiary sciences as pathology the thing grows fantastic. Every week the Journal of the American Medical Association prints a comic section that is devoted mainly to the pathological imbecilities printed in American newspapers—and the journals represented are by no means all small ones. It is the big city dailies, indeed, that devote themselves most ardently to impossible operations, magical marvels in bacteriology, and the new cancer cures. Such "news" is not only printed uncritically, to the prosperity of quacks; it is also defaced with all sorts of astounding howlers. The average newspaper copy-reader seems to be no more halted by a piece of copy speaking of diabetes of the lungs than he is by a story referring to Bach as the author of "The Messiah."

Science News-Letter, July 9, 1927

A French physician has found horse serum more effective for wound dressing than collodion.

New uses for cotton are being sought by government scientists in the hope of finding an outlet for surplus cotton production.