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Hot Spell Surpasses

All Others In Length

(By Science Service)

Washington, August 15. -- The hot wave that this country is experiencing has been of unprecedented duration, according to weather experts at the central office of the U. S. Weather Bureau here. There have been short durations of a month or less when the temperatures were higher than during the present hot weather but never before, the weather men believe, certainly not in the last 50 or 60 years whose temperature records have been dug into, have abnormal temperatures been so everlastingly on the job.

Even last winter, which we remember as an extremely mild one, was the beginning of the extended heat wave. In the eastern and central states, east of the Rockies, for the last eleven months, excepting only November, temperatures have been consistently higher than the average temperature over a long stretch of years, which is taken as standard.

The people of Boston have been living in Philadelphia during the first six months of this year, so far as temperature is concerned, Alfred J. Henry, meteorologist at the Weather Bureau has found. The average temperature of Boston has been abnormally high and from January to June has equalled that usually experienced in Philadelphia.

New York, America's center of commerce, has been thermometrically located for the same period in Washington, the governmental center of the country, while Washington has been shifted southward and located on the boundary of Virginia and North Carolina.

Out in the middle West, the same southward climatic travel has occurred. Des Moines, if it were located on the map by its temperature would be set down in southwestern Missouri, Prof. Henry has found.

Chicago has, however, been the hot spot of the country this summer, an analysis of reports show. July was the hottest month that that city has had for 51 years. Its average temperature for the month was 2.8 degrees warmer than any other month, while it was 8.8 degrees higher than normal. That city has been so continually hot that the average temperature for July is higher than the average normal highest temperature, while the average minimum temperature for the month is 2.1 degrees higher than the normal monthly mean. Twelve July days of above 90 degrees weather broke all previous records, and 54 days when the temperature was continually above normal were other record breakers. The accumulated excess temperature at Chicago from the first of the year to the end of July has been the large total of 1753 degrees. This means that since January 1, the average daily excess in temperature has been 8.3 degrees.

The southwestern parts of the country and most of the Pacific Coast have been fortunate enough to miss most of the present hot weather. During the past months, there have been deficiencies in temperature in those regions rather than excesses.

Western Europe has also experienced similar continued hot weather, according to data that have reached here, and it has been accompanied by lack of rain and is causing draught in England and France. How the rest of the world is affected, Weather Bureau officials do not know, as data from other sources have come in very slowly and are meager.

The theory that sun spots have anything to do with the present hot spell is scouted by Prof. Charles L. Marvin, chief of the Weather Bureau. Some scientists in Europe and this country have declared that there is evidently some connection, but Prof. Marvin, after examining the data that have been obtained on the intensity of the sun's radiation during the presence and absence of sun spots, has come to the conclusion that atmospheric temperatures are not perceptibly affected by spots on the sun.

"We find that the temperatures and rainfall seem to vary with the pressures of the atmosphere, particularly in the so-called 'centers of action' which seem to be critical points for atmospheric changes," Prof. Marvin states. "These large air movements caused by pressure changes seem to be real causes of temperature changes and precipitation, but we have yet to learn what causes them."

The long hot spell that we have been experiencing is no sure sign that it will continue and that we will have a late fall, according to Prof. J. Warren Smith who studies the weather and its influence on crops and outdoor operations.

The most recent hot spells that do not equal the present one in length but exceed it in temperature occurred during July 1901 and August 1918, according to P. C. Day, climatologist at the Weather Bureau.

Complete Map of Country Will (By Science Service)
Aid National Development.

Washington, August .- Engineers and others interested in the developed of this country are urging the consideration by Congress of a bill recently introduced to provide for the completion of the topographical survey of the United States. Approximately 60 or perhaps 70 per cent. of the area of this country has no topographic maps of the accuracy required as the basis for industrial, engineering and scientific operations.

The expenditure of \$37,200,000 during a period of twenty years is contemplated by the bill offered by Representative Henry W. Temple of Pennsylvania, but engineers point out that the nation will receive a much greater return for such an expenditure, and that it is not a running expense but a permanent investment, just as are the Reclamation projects and the Panama Canal.

"If we are to continue at the rate of progress being made now in our topographic mapping and control surveys as the basis for such maps, it will be 100 years or more before the work is completed and, in the mean time, all the areas of the country which are undergoing development would have to be resurveyed a number of times," declares Maj. William Bowie, chief of the division of geodesy of the U. S. Coast and Geodetic Survey and vice-chairman of the Federal Board of Maps and Surveys. "Today we do not know and I venture the assertion that no expert in the field of any one of the natural resources knows within 50 per cent what we actually have. We have used them right along and we have the feeling that when we use up any one thing there will always be something to take its place. It is only when we have actually discovered, mapped and measured the extent of our resources that we will be able to adopt some wise plan for their use and conservation."

Before an investigator in any field, that has to do with the lay of the land, can do his work most efficiently he must have a map of that region, it is pointed out. This is true whether he be a chaser of insects, a classifier of plants and flowers, a geologist hunting buried treasure, an engineer locating a large water-power project, or just a plain business man planning a sales campaign.

Fishes, As Well As Bathers,
Object To Oil On Beaches. (By Science Service)

Washington, August .- Tar and oil floating on the ocean and being driven in on the beaches is becoming a national menace, both to bathers and summer visitors to sea-side resorts and to marine life and vegetation along our shores.

In the vicinity of New York, in Delaware Bay and in lower Chesapeake Bay and along the Southern Gulf coast, the waste oil thrown out by tankers, oil-burning steamers, shore gas producing plants, and even small launches has become so plentiful that it has ruined bathing in many places and threatens to exterminate the food fish, oysters, clams, crabs and lobsters that are a part of our national food-supply.

The Bureau of Fisheries of the Department of Commerce has been investigating the extent of the damage being done and resolutions at a recent conference called by

Secretary Hoover to consider water pollution and fish protection declared that unless conditions are promptly remedied our shore fisheries at least will steadily decline and in a few years will be almost altogether ruined.

A bill is now before Congress, introduced by Representative T. F. Appleby of New Jersey, that makes it illegal to pollute the navigable waters of the United States by oil and other refuse matter,

The oil is thrown into the ocean by tankers and oil-burners that wash the waste oil and sediments out of their tanks. Oil refineries and gas plants on shore and rivers are also offenders, and in many cases slow leaks in petroleum tanks on the water front contribute their share of the trouble.

The oil pollution is not confined to the ocean shores, however, as ^{some} inland streams are covered with oil as well as polluted with sewage and trade wastes.

Benzol Not A Formidable
Gasoline Substitute.

(By Science Service)

Blended gasolines which ordinarily contain a considerable quantity of benzol are very satisfactory as motor fuels although they are not as cheap as common gasoline. Recently exaggerated statements have been made to the effect that these blended gasolines were much cheaper and more efficient than true gasoline. Such assertions are wholly without accurate foundation and are not based on scientific experiments and facts. The special advantage which results from the use of benzol blends and mixtures as motor fuel is due to the fact that these mixtures will not detonate on steep hills where the strain on the engine is severe. Ordinary gasoline will detonate under such conditions to the extent that in many cases, the spark has to be retarded with a consequent loss of power. Where the benzol-gasoline mixtures are used as fuel, this never occurs.

Pure benzol mixed in proper proportion with good quality gasoline do not injure the metal parts of the automobile engine. However, in the refining of benzol, injurious ingredients are often introduced which, subsequently, may damage the engine parts. The sins of commission commonly attributed to benzol are really caused by these foreign materials which get into the benzol during the refining process. These impurities in some varieties of benzol are particularly undesirable because of their action on carburetor floats.

There are no grounds for apprehension regarding the possibility of benzol and benzol blends developing into popular substitutes for gasoline because the available amounts of these materials are so limited as to be almost insignificant when compared with our gasoline resources. The maximum amount of benzol which possibly could be produced would only be equivalent to approximately 5 per cent of our annual gasoline consumption. It is desirable that all the benzol mixtures available should be utilized in the most efficient manner as motor fuel, but any attempt to popularize this material as a gasoline substitute is sure to prove fatal to the industry. If an abnormal demand for benzol is developed, the logical results will be a decided rise in price to a peak point when the material will be outside the reach of the average car-owner and available only for the use of the wealthy motorists who do not bother about the price of motor fuel.

Closely linked to this problem of the most efficient use of satisfactory motor fuels is the matter of proper carburetor adjustment. The majority of motorists use too rich a mixture of gasoline and air to the extent that both power and gasoline are wasted needlessly. The best evidence that the average gas mixture is too rich is the vast number of "dopes" and "gasoline improvers" which are on the market and which have heavy sale. The fundamental essential in the use of these "motor improvers" is that the carburetor be adjusted so as to provide a leaner mixture. For the most part, as satisfactory and beneficial results would obtain if only the carburetor were properly adjusted and none of these commercial products were used. Scientific tests and investigations have demonstrated repeatedly that the majority of these gasoline "dopes" are practically valueless and that the real improvements in mileage and engine efficiency result solely from the proper regulation and manipulation of the carburetor.

(Editors: These short paragraphs will either supply you with useful fillers or provide a daily science feature.)

DO YOU KNOW THAT-

Vinegar is made from orange juice in Florida and California.

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A radically new type of airplane, with a huge box-like fuselage or body instead of the cramped and streamlined fuselage of the ordinary plane, has been given successful preliminary trials.

. . .

The ticking noise of the "death-watch" (a species of beetle), often heard in houses in the silence of the night, is caused by a rapid hammering of the insect's head on some suitable resounding material.

. . .

The eye, without aid of the telescope can locate stars and comets that are brighter than what the astronomer calls $6\frac{1}{2}$ magnitudes. Each magnitude is two and a half times as bright as the next lower one.

. . .

DO YOU KNOW THAT-

The Mesabi Range, one of the six famous iron ranges of the Lake Superior region, has produced more than 40,000,000 tons of iron ore in a year.

. . .

Probably the most intensely luminous animal for its size is a small marine crustacean, *Cypridena hilgendorfi*. One part of its luminous gland in 1,600,000,000 parts of water will give a visible glow to that medium.

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Several hundred local names of winds are in use in various parts of the world.

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Fresh water mussel shells are used in making pearl buttons, glass and chicken feed. After the buttonblanks are cut out of the shells, they are ground up into chips or chicken grits and the powder is used in glass making.

. . .

DO YOU KNOW THAT-

Salt Lake City, Utah, has an elaborate police patrol system to protect the watersheds that provide its water supply, and 20 miles of telephone wire, four miles of underground cable and eleven police boxes have been erected to provide communication.

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The leaves and branches of black surac, which grows wild in the central-eastern states, are used in tanning and dyeing operations and are in demand this fall. The gatherers will receive about \$1 per hundred pounds for first-grade material.

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White concrete blocks instead of painted lines are used in Portland, Oregon, to mark cross-walks and other traffic lines placed on the streets.

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During the past fifty years the rainfall at Norfolk, Va., has been decreasing on the average of one-third of an inch a year.

. . .

DO YOU KNOW THAT-

Milk dealers and bottle makers have to pay particular attention to the color of the glass used in milk bottles, as certain tints in the glass, such as green, make the milk look unpalatable.

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The world's supply of available unmined coal is estimated to exceed 8,000,000,000,000 tons.

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Concrete ships are being used on the Rhine for river trade. The Germans are building many such boats to replace those that were turned over to the Allies.

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"Pine bark fish stew" consists of a mixture of onions, tomatoes, celery, pimento and fish cooked in oil and poured over rice, and is usually served on pine bark platters at outings in the Southern sea-coast states.

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DO YOU KNOW THAT-

A barrel of oil contains 42 gallons.

...

During an anti-fly campaign on the Canal Zone, the breeding source of flies in a Balboa restaurant was found to be in the inner parts of 12 old grease-soaked corn brooms used to sweep the floors.

...

Fire-weed, which invariably springs up after forest fires in the Northwest and covers large areas, is a source of large amounts of honey that can be profitably be gathered by bees.

...

Daily and monthly wages of various classes of agricultural laborers are fixed by an agricultural society of Melun, France, near Paris, on a sliding scale based on prices for wheat.

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DO YOU KNOW THAT-

In the seventeenth century, during England's first smoke agitation, it was recommended that all factories be moved from the city to a distance of eight miles to remove the nuisance.

...

There are more than 1500 species of firefly.

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A Dutch meteorologist has studied the winter temperatures in Western Europe from 760 to 1916 A.D. He has found that greater activity of sun spots is accompanied by winter setting in harder and earlier than usual, while less activity of the spots corresponds to late mild winters.

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Eat more kid, rabbit, horse and seal meats, is the advice of the Department of Agriculture.

ANCIENT ROYAL PURPLE
INFERIOR TO MODERN DYES

(By Science Service)

Tyrian purple, the most famous dye of antiquity, was so expensive that in the reign of Diocletian one pound of purple wool cost \$240, which would make the dye itself worth about \$5,000 a pound. In 1909 Professor Friedlander gathered 20,000 of the sea snails from which this ancient dye was made and prepared a little of the coloring matter. His investigations showed it to be identical with a dye known to synthetic chemists but not used on account of its inferiority to other synthetic dyes which are both cheap and common at the present day.
