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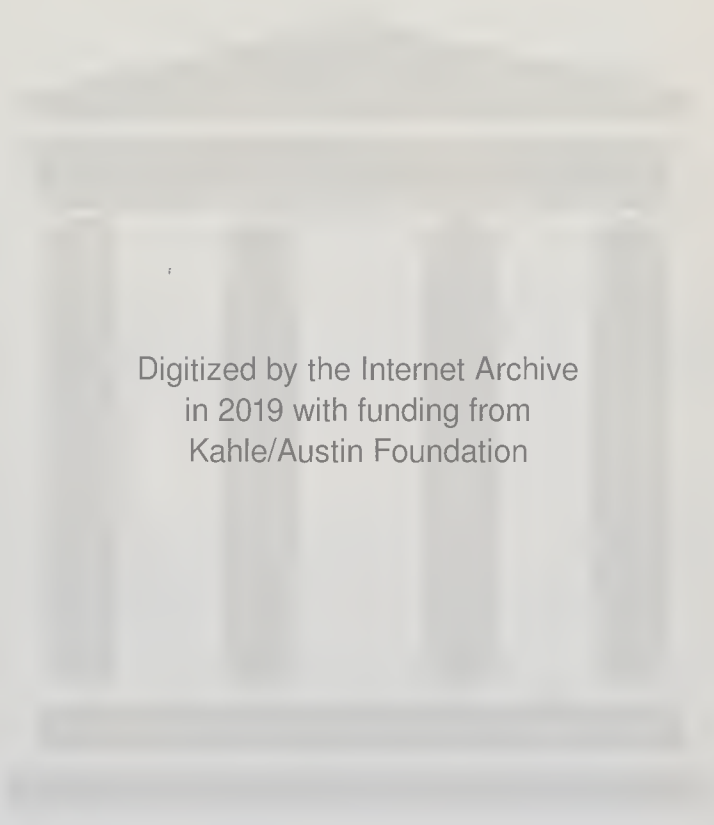
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SPRING

SUMMER

THE OLD FARMER'S 1970 ALMANAC

BY ROBERT B. THOMAS



BENJAMIN FRANKLIN



ROBERT B. THOMAS



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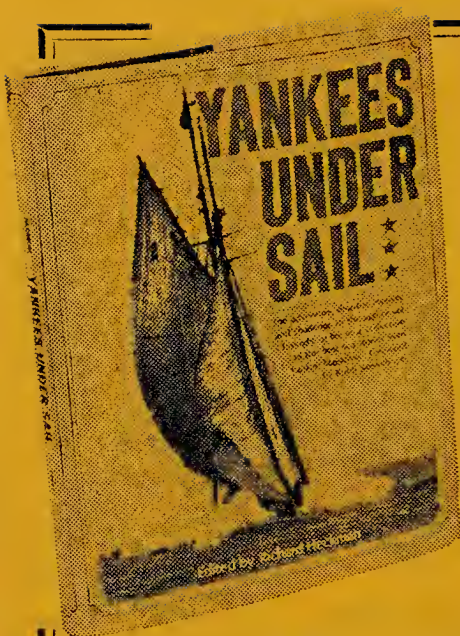
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Spread white or whole wheat bread with peanut butter. Add a dollop (1 tablespoon) Grandma's West Indies Molasses and spread over peanut butter.

Add 2 dollops (2 tablespoons) Grandma's West Indies Molasses to each 1-pound can baked beans in tomato sauce.

Fill cavity of acorn squash with 2 dollops (2 tablespoons) Grandma's West Indies Molasses, 1 tablespoon butter or margarine, a dash of salt and nutmeg before baking.

Add equal parts of Grandma's West Indies Molasses and sugar to the cored center of apple before baking.

Add a dollop (1 tablespoon) Grandma's West Indies Molasses and but-

ter to hot biscuits, cornbread or pancakes.

Fold a dollop (1 tablespoon) Grandma's West Indies Molasses into prepared whipped topping mix.

Combine 2 dollops (2 tablespoons) Grandma's West Indies Molasses and 3 tablespoons melted butter or margarine to glaze 1 bunch cooked carrots.

Add a dollop (1 tablespoon) Grandma's West Indies Molasses to 1 cup hot or cold milk.

Combine equal parts Grandma's West Indies Molasses and prepared mustard to use as ham glaze last 30 minutes baking time.

Add a dollop (1 tablespoon) Grandma's West Indies Molasses to 1 pound can chilled applesauce.

Spoon a dollop (1 tablespoon) Grandma's West Indies Molasses over hot cereal or mix molasses

with milk and pour over cold cereal.

Stir a dollop (1 tablespoon) Grandma's West Indies Molasses into 6 ounces orange juice.

Blend a dollop (1 tablespoon) Grandma's West Indies Molasses with syrup from a 1-pound can fruit (peaches, apricots, pears or fruits for salad) and spoon over fruit.

Fold 2 dollops (2 tablespoons) Grandma's West Indies Molasses into prepared vanilla flavor whipped dessert mix.



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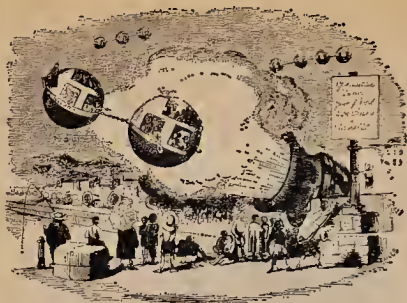
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THE BOMB FERRY—TRAVEL IN THE 50TH CENTURY.

This prophetic woodcut was published in 1876 by the J. B. Burr Co., Hartford, Conn.

AROUND THE MOON AND BACK AGAIN

This account is included herein so that readers of this Almanac in future generations will have a record of exactly how it was.

Col. Frank Borman, Capt. James Lovell, Jr., and Maj. William Anders—the three American astronauts who took off in the capsule Apollo 8 from Cape Kennedy, Florida at 7:51 A.M., December 21, 1968, were back from moon orbit at 10:51 A.M., December 27th, southwest of Hawaii. By 3:01 A.M., following the day of the launch, from 139,000 miles above the earth, traveling towards the moon at 3100 m.p.h., their first live telecast was made. This was followed by another on December 23rd at 2:58 P.M. Thirty-two minutes later Apollo 8 was in the moon's sphere of gravitational influence. After a 7:29 A.M. telecast from lunar orbit on the 24th, the space craft began (9:26 A.M.) a 69.8 mile high circular orbit of the moon at 3551 m.p.h. On Christmas Eve came greetings (9:31 P.M.) and readings from Genesis.

The most dramatic question—to the listeners and viewers on earth—was whether or not the rocket machinery on board would successfully bring the space craft out of moon orbit and back onto its path back to earth. At 1:10 A.M., Christmas Day it did. After two more telecasts and an important course correction, also by rocket, Apollo 8, traveling at 8500 m.p.h. at 8:00 A.M., was nearing, December 27th, the earth's atmosphere. This it entered at 24,350 m.p.h. and splashed down in the Pacific Ocean that same day at 10:51 A.M. This first manned lunar orbit was not only the cause of great rejoicing and congratulations, but also of real inspiration to all mankind.

THE LANDING

Astronauts Neil A. Armstrong, Col. E. E. Aldrin, Jr., and Michael Collins left Cape Kennedy in Apollo 11, July 16, 1969 at 9:32 A.M. Following pretty much the schedule of Apollo 8 (above) they entered lunar orbit July 19 at 1:22 P.M. Armstrong and Aldrin left the mother ship, Columbia, crawled into its module Eagle and by means of Eagle landed on the moon at 4:17 P.M. July 20th. Armstrong, the first human ever to step on the moon (or any other planet) did so at 10:56 P.M. remarking, "This is Tranquility Base." Aldrin followed him at 11:14 P.M. Their stay of 24 hours and 27 minutes ended with the successful lift-off of Eagle from the moon at 1:55 P.M. July 21. Eagle rejoined Collins and the Columbia at 5:35 P.M. The Columbia left moon orbit, leaving Eagle behind, to "splash down" on the earth on July 24 shortly after noon.

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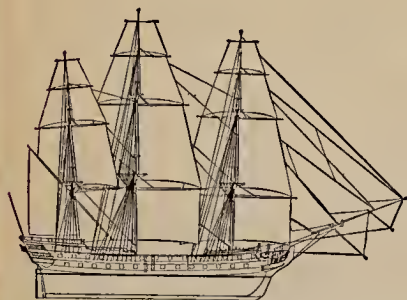
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The above portrait of Rubens Peale (1784-1865) holding the first geranium plant to bloom in the U.S.A. (1801) is by Rubens' brother, Rembrandt (1778-1860). Both were the sons of the Charles Willson Peale, famous for his portraits of George Washington. This portrait was loaned to the Metropolitan Museum of Art, New York City, upon the occasion of its loan exhibition of American Art from American collectors, by Pauline E. Woodworth, in the Spring of 1963.

Courtesy Barbara E. Scott Fisher

Number One Hundred and Seventy-eight

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Swarms; — the wide air is full * * * Eternal Love doth keep,
In his complacent arms, the earth, the air, the deep.

WILLIAM CULLEN BRYANT (1870 Old Farmer's Almanac)

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WEATHER FORECASTS

For Entire U.S.A. — see page 17, and the verses in italics on pages 23-45

For Boston and Vicinity — see page 94.

For No. New England — see page 95.

For So. New England — see page 98.

For Eastern States, except New England — see page 101.

For Midwestern States — see page 105. For Great Plains — see page 111.

For Pacific Northwest — see page 114. For Southern States — see page 119.

For Anywhere by Moon — see page 122.

Readers will please note that the weather forecasts throughout this almanac may be read directly without correction for all of the regions indicated above.

FOR TIMES OF SUNRISE, SUNSET, MOONRISE, MOONSET, AND PLANETS — SEE PAGE 92 AND—

For Boston and Vicinity — see pages 22-44, 46.

For New England, except Boston — see page 95.

For Eastern States, except New England — see page 100.

For Midwestern States — see page 104.

For Western and Mountain States — see page 110.

For Southern States — see page 118.

KEY LETTER CORRECTIONS — The key letters which appear on pages 22-44, 46, for each day are for correcting the above times in areas outside of Boston.

TIDES

See pages 22-44 for times of morning and evening high tides. See pages 23-45 for heights of same. To correct these times and heights to your locality, see page 89.

To Patrons

■ THIS IS THE 178TH CONSECUTIVE annual edition of THE OLD FARMER'S ALMANAC(K). It is for the year 1970, or Atomic Year 26. It is the oldest continuously-published periodical which has not undergone change of title or format in America. Founded in 1792 while George Washington was President — the same year in which the corner stone of the White House was laid — its name and format have, with one exception, remained unchanged. The exception is that in 1832, in order to distinguish it from imitators, the word "Old" was added to its title.

All of us here have been saddened this Spring by the death of our astronomer Loring B. Andrews. A native of Boston, he earned Bachelor's, Master's, and Doctorate degrees in Astronomy at Harvard University. He taught there from 1925 to 1938 and was the Executive Secretary of the Harvard Observatory. In 1941, he took on the preparation of the astronomical material for this Almanac; viz. sunrise, sunset, moonrise, moonset, planets, eclipses, tides, etc. etc. Not a year went by when in one way or another he didn't make this Almanac more valuable to its readers. At age 62, just one day after he had sent us his calculations for this edition, almost as if he had known this was to happen, he passed away from a heart attack.

Aside from the astronomical material, Mr. Andrews had been commissioned by us in the past few years to do research work on the sunspots and how these may or may not affect the weather. We are hoping we will be able to continue this work.

Benjamin Rice has again prepared the Farmer's Calendars, Judson Hale the puzzles and layouts, Rob Trowbridge and Stephen Avery, along with the Triangle Publishing Company, have taken care of distribution, advertising and printing.

THE BIG MEMORY OF 1969 WAS THE MOON LANDING. This we have commemorated elsewhere in this issue on page 8. The moneys expended, the risks, of space exploration have been questioned. There is little doubt however that anyone who watched or listened to or read about Apollo 11 became a better, stronger, and more hopeful individual.

We do, however, question some other trends in this country. For example, the Atomic Energy Commission, despite protests by scientists, is right now saying there is no **proof** that the warming of rivers by atomic power stations, etc., does harm wildlife. What is this more than to say "We, the AEC are now so big and strong we can approve all the reactors we wish to and your opinion as an individual isn't worth a tinker's damn." So it is with the Post Office Department, the Pentagon, and most of big government and business.

Unless and until public servants learn and carry out the wishes of the majority of individual American citizens, the present frustrations, riots, demands, etc. are bound to continue.

In these things, however, man can only propose. God is the true disposer. In this it is by our works and not by our words we would be judged. These we hope will sustain us in the humble, though proud, station we have long held, in the name of

Your ob'd servant,

W. O. Thomas.

July 22, 1969

Last Winter's Weather

(Nov. 1968 — April 1969)

On Page 17 of the 1969 OFA, Old Abe forecast a "mild winter in the East" but "cold and snowy from Chicago west" — with the one really big storm at the end of April. It was mild in the East as well as West. There was a big storm last week in April. However, the East caught more snow in February than it had known in many a year. The verses running down the right-hand calendar pages (23-45) were just about 90% right. On the regional forecast pages (92-119), Abe made some 425 forecasts of which 264 (62%) were approximately correct. Verifications taken from USWB monthly reports at the various area stations follow.

THE SOUTH

1.2° cooler than ave. Abe said it would be cooler. Prec. 25.5". Abe said there would be 30% more rain than the year before which was 29.2". He made 59 forecasts of which 40 were substantially correct (68%). There were 3 big storms — Dec. 21-24, Jan. 18-21, and Apr. 10-14 — all of which were correctly forecast.

BOSTON

3° cooler than ave. Abe said 3° cooler. Prec. was 33.5". Abe said 24". Snow was 78.8". Abe said 57". He made 53 forecasts of which 30 were appr. correct (59.9%). There were 7 big storms, Nov. 8-11, Dec. 1-4, 15-21, Feb. 8-9 (13" snow), 20-24 (27" snow), Mar. 21-23, and April 16-19. Only 3 were correctly forecast — he missed both of the February ones.

NORTHERN NEW ENGLAND

2.9° cooler than ave. Abe said 3.1° warmer. Prec. was 15.72" or 3.12" above ave. Abe said 4.2" below ave. Abe made 59 forecasts of which 34 (57%) were correct. There were seven big storms — Nov. 12-15, 26-30, Dec. 14-16, 28-31, Feb. 4-10, 24-26, April 17-19. Abe correctly forecast 5 of the 7. Over 90" of snow fell in February, breaking all records in both Maine and Vermont.

THE MIDWEST

Temperature was correctly forecast as average. Prec. however was above the normal, perhaps 10%. Snow was light and not as much as last year (Abe said there'd be more). There were no remarkable storms. Of Abe's 48 forecasts (Feb. exc.) 29 were correct.

George G. Hyland, Maintenance Engineer, Massachusetts Turnpike Authority, has again been kind enough to send us the weather summary along the Turnpike last winter. Nov. 12-13, rain at Boston exit, 4"-10" at Lee, Feb. 9 (1st major storm) 15" at Boston, 16" at Lee, Feb. 23-27, 26" at Boston, 6-10" at Lee, Mar. 2-3, 5-6" Boston, 6" Lee. Total snow depths Nov.-Mar. Stockbridge, 136". Springfield, 46". Worcester, 76". Framingham, 64". Boston, 54".

THE GREAT PLAINS

The temperature was half a degree cooler rather than the half a degree milder, which Abe forecast. Prec., including 32" snow, was 4.15". January, which Abe forecast as much colder than usual was much milder (6.5°!). None of the storms seemed to be remarkably bad. Abe made 46 forecasts of which 30 were correct (65%).

EASTERN STATES (EXC. NEW ENGLAND)

The forecast was "colder than usual." Actually it was 3.4° colder. The snowfall of 30" was a lot — as forecast — less than normal. Of Abe's 59 forecasts 33 were correct or just over 50%. None of the storms seem remarkable.

PACIFIC NORTHWEST

The forecast said a lot colder than last year. It was by 3°. It also said a foot more snow. There was 18" more. Old Abe made 48 forecasts of which 34 (70%) were correct. Significant storms: Nov. 4-8, Dec. 3-4, 28-31, Jan. 4-6, 9-11. Of these five, Old Abe predicted four correctly.

SOUTHERN NEW ENGLAND

Temperatures averaged about a degree above average, enough to say Abe's forecast was honest. Prec. was up over 5", but the snowfall (32") was practically all in the two Feb. storms (8-9), and (20-23). Old Abe did forecast the latter. Of the 53 forecasts some 34 came out right (66%). Other significant storms came Nov. 8-11, Dec. 4, Mar. 24-27, April 16-19, 27-30, — of which Abe foretold three.

Weather Forecast 1969=70

The verses in *italic type* (same as this) which run vertically down the middle of the Calendar Pages (23-45), cover the country as a whole for the calendar year of 1970. These are for the days indicated by the beginning capitalized word and ending with the period. In addition, there follows herewith: 1) a prose summary of the Winter in general across the country from November, 1969 through April, 1970; and 2) a summary for the calendar year 1970 (January-December). These general forecasts are then broken down into nine regional weather forecasts, both for the Winter (November, 1969-April, 1970, and the calendar year (January-December, 1970). See pages 92-119.

As all of these forecasts are based, for verification purposes, at established U.S.W.B. Stations, the temperature will be about 5° higher for each 100 miles south of the U.S.W.B. Station location given in the above-mentioned summaries and 5° lower for each 100 miles north. For each 1,000 feet of altitude, reduce temperatures approximately 3° . . . read, with the colder temperatures, "snow" for "rain."

THE WINTER (Nov. 1969—Apr. 1970)

This winter will be its atrocious, fickle, unpredictable self. The ingredients—make no mistake—for heavy snows, blizzards, frozen pipes and toes are all here. BUT the averages say *warmer than normal* coast to coast. And, what's more, normal precipitation. So for a while it will be "cold and open" and then for another while "warmish with heavy wet snows." You'll freeze one day—and bake the next! Heavy storms that will, one way or another, drop glaze, hail, sleet, snow, freezing rain or snow all over the U.S. will come along Nov. 22-26, Dec. 23-26 (white Christmas, goodie!), Jan. 7-9, 22, and 25-28, Feb. 4-5, and 20-22, Mar. 13-15 and 21-28, and April 2-6. Once again expect a fine winter for skiing at all northerly ski resorts as well as at times in the streets of Fargo, Chicago, Duluth, Buffalo, New York, Portland (Me.) and Boston.

THE YEAR—Jan.-Dec. 1970

Average daily temperatures will be normal or above all over. On the West Coast, in the South, and Pennsylvania it will be extremely hot and dry. So will Massachusetts and Rhode Island from May on. Look for an annual deficiency of precipitation on the order of 20% in Massachusetts, Oregon, Pennsylvania and Georgia. Maine and Vermont are the only two states in Abe's forecast to end up with above normal precipitation for the year.

July and August will be perfect vacation months everywhere . . . dry and hot. Farmers however will definitely need irrigation as well as sprinklers.

ECLIPSES FOR THE YEAR 1970

There are four eclipses, two of the Sun and two of the Moon. Both eclipses of the Moon will be partial eclipses. Of those of the Sun one will be total and the other annular.

I. A Partial Eclipse of the Moon, February 21, 1970. The beginning of the umbral phase will be visible in North America, South America, the northwestern part of the Atlantic Ocean, most of the Pacific Ocean, New Zealand, the extreme northeastern part of Asia, and the arctic regions. The end of the umbral phase will be visible in North America, most of South America, the northwestern part of the Atlantic Ocean, the Pacific Ocean, New Zealand, the eastern part of Australia, the northeastern part of Asia, and the arctic regions. This is a minor eclipse; only 5% of the moon's diameter will be covered when the eclipse is at its maximum. The umbral phase begins at 3.02 A.M. E.S.T. and ends at 3.58 A.M. E.S.T. The penumbral phase preceding the umbral begins at 1.59 A.M. E.S.T., while the penumbral phase following the umbral ends at 6.01 A.M. E.S.T.

II. A Total Eclipse of the Sun, March 7, 1970. Visible from the United States. The path from which the total phase of the eclipse will be visible stretches from a point just south of the Equator in Longitude 149° W., where the eclipse is a phenomenon at sunrise, to a point in the Atlantic due west of the British Isles and south of Iceland, where it is a phenomenon at sunset. This path ranges in width from about 60 miles near its beginning and ending points to just under 100 miles at its midpoint, reached in the Gulf of Mexico, where the total phase occurs at 1.04 P.M. E.S.T. On its way to this midpoint the path crosses the southernmost part of Mexico, through the states of Oaxaca and Vera Cruz. After crossing the Gulf of Mexico the center line of this path of totality touches land again on the Florida coast southeast of Tallahassee, bringing totality there about 1.17 P.M. E.S.T. Thence the path runs northeastward to the eastern seaboard along which it runs before "putting out to sea" again at Norfolk, Virginia, where total eclipse occurs about 1.36 P.M. E.S.T. The center line of the path of totality skirts Cape Cod to seaward and so, too, most of the Atlantic coast of Nova Scotia before crossing nearly centrally through Newfoundland. Thereafter it crosses the open Atlantic to its ending point. The total phase of the eclipse can thus be observed from points near the eastern seaboard of the United States from Florida to Virginia, as well as in the northwesternmost part of Florida. As a partial eclipse, it will be visible throughout the United States. The approximate times for the beginning, middle and end of the partial eclipse are given in this table:

Time Zone	Beginning	Middle	Ending
Eastern	12.25 P.M.	1.40 P.M.	2.55 P.M.
Central	11.05 A.M.	12.20 P.M.	1.35 P.M.
Mountain	10.00 A.M.	11.00 A.M.	Noon
Pacific	8.40 A.M.	9.30 A.M.	10.20 A.M.

The magnitude of the partial eclipse will be greatest in the Eastern Standard Time zone, least in the Pacific.

At Smith's Point near Port Dufferin, Nova Scotia four Canadian Black Brant Rockets will be launched to measure upper atmosphere changes during the March 7th eclipse. Measurements recorded by the rockets will be radioed back to the launch site.

III. A Partial Eclipse of the Moon, August 16, 1970. The beginning of the umbral phase of the eclipse will be visible in Europe, Africa, the Atlantic Ocean, North America except the northwestern part, South America, the southeastern part of the Pacific Ocean, and Antarctica. The end of the umbral phase will be visible in western Europe, the western half of Africa, the Atlantic Ocean, North America except the extreme northwestern part, South America, the eastern part of the Pacific Ocean, and Antarctica. At maximum 41% of the Moon's diameter will be covered. The umbral phase begins at 9.17 P.M. E.S.T. and ends at 11.30 P.M. E.S.T., mid-eclipse occurring at 10.23 P.M. The penumbral phase of the eclipse starts at 8.06 P.M. on August 16th and ends at 12.40 A.M. on August 17th, both times Eastern Standard.

IV. An Annular Eclipse of the Sun, August 31, 1970. Both the annular and partial phases of this eclipse occur almost completely over the waters of the South Pacific. Except for New Zealand and a few small Pacific islands the annular and partial phases of this eclipse are to be seen only from the waters of the South Pacific. While the eastern half of Australia, New Guinea and the Solomon Islands lie within the area covered by the eclipse, the eclipse occurs there around sunrise. The northern coast of the Antarctic continent also falls within this area, but there the eclipse is but a minor partial eclipse, since the coast of the continent lies at the southern fringe of the area from which the eclipse will be visible.

EARTH IN PERIHELION AND APHELION, 1970

The Earth will be in Perihelion on January 1, distant from the Sun 91,400,000 miles. The Earth will be Aphelion on July 4, distant from the Sun 94,510,000 miles.

Holidays, 1970

†Are recommended as "with pay" holidays—regardless of regular periods—for all commercial employees. (*) Quite generally observed. (**) State holidays only. (***) Observed some places though probably not holidays.

All dates are also included in abbreviated form on the Calendar pages 23-45.

- Jan. 1 (*†) New Year's (all)
Thurs.
Jan. 8 (**) Battle New Orleans
(La.)
Jan. 16 (**) Arbor Day, Fla.
Jan. 19 (**) Robert E. Lee's
Birthday (South)
Jan. 26 (**) MacArthur (Ark.)
Jan. 30 (**) F.D.R.'s Day (Ky.)
Feb. 10 (**) Mardi Gras. (Ala.,
Fla., La.)
Feb. 12 (*) Lincoln's Birthday (33
States) Thurs.
Feb. 14 (***) Valentine's Day
Feb. 14 (**) Admission Day
(Ariz.)
Feb. 15 (***) Susan B. Anthony
Feb. 16 (**) Wash. Day. (Mass.)
Feb. 22 (*†) George Washington's
Birthday, Sun.
Mar. 1 (**) State Day (Nebr.)
Mar. 2 (**) Texas Ind. Day
Mar. 7 (**) Burbank Day (Cal.)
Mar. 15 (**) Jackson Day (Tenn.)
March 17 (**). St. Patrick's or
Evacuation Day (Boston)
Mar. 15 (**) Maryland Day
Mar. 26 (**) Kuhio Day (Haw.)
Mar. 27 (**) Good Friday (*Conn.,
Del., Fla., Haw., Ill., Ind., La.,
Md., Minn., N. J., Penn., Tenn.
& W. Va.)
Mar. 30 (**) Easter Mon. (N. C.)
Mar. 30 (**) Seward's Day (Alas.)
Apr. 2 (**) Pasqua Day (Fla.)
Apr. 12 (**) Halifax Day (N. C.)
Apr. 13 (**) Jefferson Day (Ala.,
Mo., Va.)
Apr. 14 (**) Pan Am. (Fla.)
Apr. 19 (**) Patriots' Day (Me.)
Sun.
Apr. 20 (**) Patriots' Day (Mass.)
Mon.
Apr. 21 (**) San Jacinto (Tex.)
Apr. 22 (**) Okla. Day, Arbor
Day (Nebr.)
Apr. 25 (*) Arbor Day (Utah)
Apr. 26 (**) Memorial Day (Fla.,
Ga., Miss.)
Apr. 27 (**) Fast Day (N. H.),
Mon.
May 4 (**) R. L. Indep. Day
May 10 (**) Mem. Day (N. &
S. C.)
- May 10 (***) Mother's Day
May 16 (**) Armed Forces Day
May 20 (**) Mecklenburg (N. C.)
May 25 (**) Mem. Day (Mass.)
Mon.
May 30 (*†) Decoration or Memo-
rial Day (exc. 5 So. States and
Mass.) Sat.
June 3 (**) Jefferson Davis Day
(Ala., Fla., Ga., Ky., La., Miss.,
S. C., Tenn., Tex.)
June 11 (**) Kamehameha (Haw.)
June 14 (**) Flag Day (Pa.)
June 15 (**) Pioneer Day (Idaho)
June 17 (**) Bunker Hill (Suffolk
Co., Mass.) Wed.
June 20 (**) West Virginia Day
June 21 (***) Father's Day
July 4 (*†) Independence (all),
Sat.
July 13 (**) Forrest's Day
(Tenn.)
July 24 (**) Pioneer Day (Utah)
Aug. 3 (**) Colorado Day, Mon.
Aug. 10 (**) Victory (R. I.)
Aug. 14 (**) V. J. Day (Ark.)
Aug. 16 (**) Bennington, Vt. Bat.
Aug. 30 (**) Huey Long (La.)
Sept. 7 (*†) Labor Day (all) Mon.
Sept. 9 (**) Admission Day (Cal.)
Sept. 12 (**) Defender's (Md.)
Sept. 16 (**) Cherokee (Okla.)
Sept. 17 (***) Citizenship Day
Sept. 25 (***) Am. Indian Day
Oct. 10 (**) Okla. Hist. Day
Oct. 11 (**) Pulaski Day (Nebr.)
Oct. 12 (*†) Columbus (All States
exc. 16) Mon.
Oct. 18 (**) Alaska Day
Oct. 24 (***) United Nations Day
Oct. 31 (**) Nevada Day
Nov. 1 (**) All Saints' Day (La.)
Nov. 4 (**) Will Rogers (Okla.)
Nov. 11 (*†) Veterans' (All) Wed.
Nov. 14 (***) Sadie Hawkins Day
Nov. 23 (**) Repudiation (Md.)
Nov. 26 (*†) Thanksgiving Day
Dec. 10 (**) Wyoming Day
Dec. 15 (***) Bill of Rights Day
Dec. 21 (***) Forefathers' Day
Dec. 25 (*†) Christmas Day (all)
Fri.

LONG HOLIDAY WEEKENDS

Massachusetts looks good for Monday holidays this year—no less than five (Washington's, Patriots', Memorial Day, Labor Day and Columbus Day). And too, you can add Good Friday and Christmas for Friday holidays, making a total of seven three-dayers for the year. New Hampshire gets only two—Fast Day and Christmas. For everybody else it just depends how lenient your boss or how independent you feel you can be for Veteran's Day (Wed.), New Year's, Lincoln's and Thanksgiving (Thurs.), Good Friday and Christmas (Fri.). Memorial Day is on Saturday.

1969

Calendar grid for 1969, showing months JANUARY through DECEMBER with days of the week (S-M-T-W-T-F-S) and dates.

1970

Calendar grid for 1970, showing months JANUARY through DECEMBER with days of the week (S-M-T-W-T-F-S) and dates.

1971

Calendar grid for 1971, showing months JANUARY through DECEMBER with days of the week (S-M-T-W-T-F-S) and dates.

Introduction

STANDARD TIME IS USED THROUGHOUT THIS ALMANAC
 Add 1 hr April 26, (deduct it Oct. 25) for Daylight Saving Time

Chronological Cycles for 1970.

Golden Number . . . 14	Solar Cycle 19	Roman Indiction 8
Epact 22	Dominical Letter* . . . D	Year of Julian Period 6683

*The Dominical Letter is used instead of the usual "S" for "Sunday" by almanac makers for determining at a glance (a) the year of the almanac, (b) on what day of the week any day of the month will fall.

Movable Feasts and Fasts for 1970.

Septuagesima Sun. Jan. 25	Good Friday Mar. 27	Whitsunday May 17
Shrove Sunday Feb. 8	Easter Sunday Mar. 29	Trinity Sunday May 24
Ash Wednesday Feb. 11	Low Sunday Apr. 5	Corpus Christi May 28
1st Sun. in Lent Feb. 15	Rogation Sun. May 3	1st Sunday in Advent Nov. 29
Palm Sunday Mar. 22	Ascension Day May 7	

THE SEASONS OF 1970

Winter (1969)	December 21	7.44 P.M. (Sun enters Capricornus)
Spring (1970)	March 20	7.57 P.M. (Sun enters Aries)
Summer	June 21	2.43 P.M. (Sun enters Cancer)
Fall	September 23	5.59 A.M. (Sun enters Libra)
Winter	December 22	1.36 A.M. (Sun enters Capricornus)

Names and Characters of the Principal Planets.

☉ ☽ ☿ ☿ ☿ The Sun.	♀ Venus.	♃ Jupiter.	♆ Neptune.
☾ ☾ ☾ The Moon.	♁ The Earth.	♄ Saturn.	♇ Pluto.
☿ Mercury.	♂ Mars.	♅ or ♂ Uranus.	

Names and Characters of the Aspects.

♄ Conjunction, or in the same degree.	♁ Dragon's Head, or Ascending Node.
□ Quadrature, 90 degrees.	♁ Dragon's Tail, or Descending Node.
♁ Opposition, or 180 degrees.	

Calendar Page Explanations and Signs

On the right hand pages (23-45) you will find every now and again the symbols given above conjoined in groups of three to give you what is happening in the heavens. See Glossary, Page 125. Example: ☉ ♃ ☾ on Page 23, opposite Jan. 2 means Jupiter (♃) and the moon (☾) are on that day in conjunction (♄), or nearest to each other.

Weather Forecasts

For the U.S.A. in general, see Page 17 and italics on pages 23-45, next to the Farmer's Calendars. For specific weather forecasts in eight different climatic areas, see pages 92-119.

Planting Tables

See Page 53. Usual planting dates as well as those *most favored by the moon* are given for most parts of the U.S.A. Favorable signs are also included. See Pages 22-44 for the days on which these occur. Also see Page 56.

Astrology Signs and Meanings

See Pages 56-59 for birth date superstitions as well as those pertaining to brush cutting, weaning, planting, marriage, etc.

Planets

See Pages 46-47. Which planet is shining so brightly for you? These pages will help you to know. Also, the configurations these planets are making with each other are given in the symbols on Pages 23-45. Astrologers as well as students of the varying strength of radio and television signals find these configurations useful.

Tides

See Pages 22-44 for the times of morning and evening high tides, Pages 23-45 for the heights of these tides. Page 89 gives the corrections needed for your locality.

Regional Sun, Moon, etc., Times

See Part III, page 92, for correcting the times (given for Boston only on pages 22 to 44) for your area. There are separate correction tables for eight different areas — in one of which you will find yours: see pages 92-119.

Questions gladly answered free of charge if accompanied by self-addressed, stamped envelope mailed to: THE OLD FARMER'S ALMANAC, DUBLIN, N. H., 03444.

1970]

JANUARY, FIRST MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.			Days.			Days.			Days.			Days.		
	0	'	00	0	'	00	0	'	00	0	'	00	0	'	00
1	23	s.	00	7	22	22	13	21	28	19	20	18	25	18	55
2	22	55		8	22	14	14	21	17	20	20	05	26	18	41
3	22	49		9	22	06	15	21	06	21	19	51	27	18	26
4	22	43		10	21	57	16	20	54	22	19	38	28	18	10
5	22	36		11	21	48	17	20	43	23	19	24	29	17	54
6	22	29		12	21	38	18	20	30	24	19	10	30	17	38

- New Moon, 7th day, 3 h. 36 m., evening, W.
- ☽ First Quarter, 14th day, 8 h. 18 m., morning, E.
- Full Moon, 22nd day, 7 h. 55 m., morning, W.
- ☾ Last Quarter, 30th day, 9 h. 39 m., morning, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	☉ Key	☽ Sets h. m.	☽ Key	Length of Days h. m.	Sun Fast	Full Sea, Boston. Morn. h. m.	Eve. h. m.	☾ Rises h. m.	☾ Key	☾ Sets h. m.	☾ Key	☾ Place	☾ Age
1	1	Th.	7 13	O	4 23	C	9 10	12	5	5 $\frac{1}{2}$	12 $\frac{A}{M}$ 17	K	11 $\frac{A}{M}$ 29	G	LIB	23
2	2	Fr.	7 13	O	4 24	C	9 11	12	5 $\frac{3}{4}$	6 $\frac{1}{4}$	1 26	L	11 52	E	LIB	24
3	3	Sa.	7 13	O	4 25	C	9 12	11	6 $\frac{1}{2}$	7 $\frac{1}{4}$	2 38	M	12 $\frac{M}{M}$ 20	D	SCO	25
4	4	D	7 13	O	4 26	C	9 13	11	7 $\frac{1}{2}$	8 $\frac{1}{4}$	3 54	O	12 57	C	SCO	26
5	5	M.	7 13	O	4 27	D	9 14	10	8 $\frac{1}{2}$	9	5 11	P	1 45	B	SGR	27
6	6	Tu.	7 13	N	4 28	D	9 15	10	9 $\frac{1}{4}$	10	6 23	Q	2 29	A	SGR	28
7	7	W.	7 13	N	4 29	D	9 16	9	10 $\frac{1}{4}$	11	7 25	P	4 05	B	CAP	29
8	8	Th.	7 13	N	4 30	D	9 17	9	11 $\frac{3}{4}$	11 $\frac{3}{4}$	8 14	O	5 28	D	AQR	1
9	9	Fr.	7 13	N	4 32	D	9 19	8	—	0	8 51	N	6 53	E	AQR	2
10	10	Sa.	7 13	N	4 33	D	9 20	8	0 $\frac{3}{4}$	1	9 20	L	8 14	G	PSC	3
11	11	D	7 12	N	4 34	D	9 22	8	1 $\frac{1}{2}$	1 $\frac{3}{4}$	9 45	K	9 30	H	PSC	4
12	12	M.	7 12	N	4 35	D	9 23	7	2 $\frac{1}{2}$	2 $\frac{3}{4}$	10 07	I	10 44	J	ARI	5
13	13	Tu.	7 12	N	4 36	D	9 25	7	3 $\frac{1}{4}$	3 $\frac{3}{4}$	10 28	H	11 $\frac{P}{M}$ 56	K	ARI	6
14	14	W.	7 11	N	4 37	D	9 26	7	4 $\frac{1}{4}$	4 $\frac{1}{2}$	10 50	F	—	—	ARI	7
15	15	Th.	7 11	N	4 38	D	9 28	6	5	5 $\frac{3}{4}$	11 15	E	1 $\frac{A}{M}$ 06	M	TAU	8
16	16	Fr.	7 10	N	4 40	D	9 29	6	6	6 $\frac{3}{4}$	11 $\frac{A}{M}$ 43	C	2 16	N	TAU	9
17	17	Sa.	7 10	N	4 41	D	9 31	5	7	7 $\frac{3}{4}$	12 $\frac{P}{M}$ 18	B	3 24	P	G'M	10
18	18	D	7 09	N	4 42	D	9 33	5	8	8 $\frac{3}{4}$	12 59	A	4 28	P	G'M	11
19	19	M.	7 09	N	4 43	D	9 35	5	9	9 $\frac{1}{2}$	1 49	A	5 26	Q	CNC	12
20	20	Tu.	7 08	N	4 44	D	9 36	5	9 $\frac{3}{4}$	10 $\frac{1}{4}$	2 46	B	6 15	Q	CNC	13
21	21	W.	7 07	N	4 45	D	9 38	4	10 $\frac{1}{2}$	11	3 47	B	6 56	P	CNC	14
22	22	Th.	7 07	N	4 47	D	9 40	4	11	11 $\frac{1}{2}$	4 51	D	7 29	O	—	—
23	23	Fr.	7 06	N	4 48	D	9 42	4	11 $\frac{3}{4}$	—	5 55	E	7 56	M	LEO	15
24	24	Sa.	7 05	N	4 49	D	9 44	4	0 $\frac{1}{4}$	0 $\frac{1}{2}$	6 58	F	8 18	L	LEO	16
25	25	D	7 04	M	4 50	E	9 46	3	0 $\frac{3}{4}$	1	8 01	H	8 38	K	VIR	17
26	26	M.	7 03	M	4 51	E	9 48	3	1 $\frac{1}{2}$	1 $\frac{1}{2}$	9 03	I	8 56	J	VIR	18
27	27	Tu.	7 03	M	4 52	E	9 50	3	2	2 $\frac{1}{4}$	10 06	J	9 14	I	VIR	19
28	28	W.	7 02	M	4 54	E	9 52	3	2 $\frac{3}{4}$	3	11 $\frac{P}{M}$ 12	L	9 33	G	LIB	21
29	29	Th.	7 01	M	4 55	E	9 54	2	3 $\frac{1}{2}$	—	—	—	9 54	F	LIB	22
30	30	Fr.	7 00	M	4 56	E	9 56	2	4 $\frac{1}{4}$	4 $\frac{3}{4}$	12 $\frac{A}{M}$ 21	M	10 19	D	SCO	23
31	31	Sa.	6 59	M	4 57	E	9 59	2	5	5 $\frac{3}{4}$	1 $\frac{A}{M}$ 33	N	10 $\frac{A}{M}$ 50	C	SCO	24



On glittering gems and diadems,
And icy crystals, bright and clear,
The sunlight gleams in silver streams,
To welcome in the glad New Year.

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	Th.	Circumcision Tides { 8.7 8.1	Drifts	
2	Fr.	♄♃♂ This day { 8.9 unlucky { 8.0	10 ft. tall	
3	Sa.	♄ Stat. Days six { 9.3 ♀ In R.A. min. longer • } 8.1	surround	
4	D	2nd S. a. C. ♄♃♂ • ♀ Stat. In R.A.	h	
5	M.	TWELFTH Take down NIGHT Xmas greens St. Paul.		
6	Tu.	Epiph. ♂ low • ♀ Stat. In R.A.	This	
7	W.	Latest sunrises { 11.2 Dec. 30-Jan. 10 { 9.4	moon's horns	
8	Th.	♄ In Bat. New • Hol. ♃ Peri. Orleans La.	predict	
9	Fr.	Today, 7-19. 8-17 high- est PM high tides	{ 11.6 more	
10	Sa.	All fame is dangerous, good bringeth envy, bad shame.	storms.	
11	D	1st S. a. E. ♂♂♂ • ♄♂♂ White Plough on J. Hancock { 10.3 Monday ♄ Eq. B. 1737 { 10.5	stuff	
12	M.	♄♃♂ Inf. • ♂ Stat. In R.A.	for ski	
13	Tu.	St. Hilary coldest of year • Fav. conceive female child.	buffs.	
14	W.	Luther King, Jr. ♄♃♂ { 9.8 born this day { 8.5	At below	
15	Th.	Mars very bright Arbor now sets 9.32 P.M. Day, Fla.	zero,	
16	Fr.	If you would learn to pray, first go to sea.	Tides { 9.4 7.8	hero,
17	Sa.	2nd a. Ep. Daniel Webster born 1782	you'll	
18	D	♄runs • Birthday Hol. ♃high • Robt. E. Lee So.	shovel	
19	M.	Fav. conceive • F.D.R. 3rd male child term 1941	out your	
20	Tu.	De-tar your Sime ran 100 { 9.5 chimneys • 9.5 sec. 1956 { 8.2	hovel.	
21	W.	The Full • Panama Canal Wolf Moon • Treaty 1903	Caw-	
22	Th.	As the twig is bent so grows the tree	Tides { 9.7	caw,
23	Fr.	♄ Stat. { 8.6 ♀ In R.A. ♄♃♂ Sup. { 9.4	January	
24	Sa.	Sept. S. • ♄♂♂ • Tides { 8.7 9.5	thaw.	
25	D	♄ on U.S. Purch. Jefferson Eq. Library 1851 (\$23,000)	It took	
26	M.	One sword keeps the other in its scabbard.	{ 9.0 9.0	a wizard.
27	Tu.	♄♃♂ Nantucket { 8.9 ice bound 1945 { 8.7	to predict	
28	W.	California Nine Day Flood Rain ends 1969	Tides { 9.0 8.4	this
29	Th.	♄♃♂ • F.D.R. Day { 9.0 Hol. Ky. { 8.1	surprise	
30	Fr.	As the day lengthens so the cold strengthens.	{ 9.1 7.9	blizzard.
31	Sa.			

"Now comes the long and social winter evenings when the farmer may instruct his family by reading useful books. I should recommend Ramsay's History of the American Revolution. Morse's Geography; and Belknap's History of New Hampshire."

So instructs Mr. Thomas in an ancient Old Farmer's Almanac.

I am sure that Mr. Thomas being both editor and bookseller, might have suggested a store full of quite different reading. But to hold to his list: The American farmer, anywhere, might have found in geography and history the anticipation an Elizabethan would have looked to in a new play or a map of far places. And, as of reading now, it is the discovery of himself as part of them that was new, for now, as then, what he read was the story of himself and his family. The Revolution was at his threshold still (Mr. Thomas' advice was given very long ago). There was still the wonder and meaning of freedom for him. Washington and his General Lee, Franklin and John Carver were people that were still alive—and more alive for their biographies (Mr. Thomas would recommend them).

Somehow I feel that these men in spirit and not in shadow are here tonight with the farmer and his family to share our fire. Perhaps they always will be.

1970]

FEBRUARY, SECOND MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.			Days.			Days.			Days.			Days.		
	0	/		0	/		0	/		0	/		0	/	
	1	17s.	05	7	15	17	13	13	20	19	11	15	25	9	04
	2	16	47	8	14	58	14	12	59	20	10	53	26	8	41
	3	16	30	9	14	39	15	12	39	21	10	32	27	8	19
	4	16	12	10	14	19	16	12	18	22	10	10	28	7	56
	5	15	54	11	14	00	17	11	57	23	9	48			
	6	15	36	12	13	40	18	11	36	24	9	26			

- New Moon, 6th day, 2 h. 13 m., morning, E.
- ☽ First Quarter, 12th day, 11 h. 10 m., evening, W.
- Full Moon, 21st day, 3 h. 19 m., morning, W.
- ☾ Last Quarter, 28th day, 9 h. 33 m., evening, E.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS—PAGE 14

Day of Year	Day of Month	Day of Week	☺ Rises h. m.	Key	☾ Sets h. m.	Key	Length of Days h. m.	Sun Fast	Full Sea, Boston. Morn h. Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age	
32	1	D	6 58	M	4 59	E	10 01	2	6	6 $\frac{3}{4}$ ₄	2 ^A _M 48	P	11 ^A _M 31	B	SGR	25
33	2	M.	6 57	M	5 00	E	10 03	2	7	7 $\frac{3}{4}$ ₄	4 00	P	12 ^P _M 25	A	SGR	26
34	3	Tu.	6 56	M	5 01	E	10 06	2	8	8 $\frac{3}{4}$ ₄	5 06	Q	1 33	B	CAP	27
35	4	W.	6 55	M	5 03	E	10 08	2	9	9 $\frac{3}{4}$ ₄	6 00	P	2 53	C	CAP	28
36	5	Th.	6 53	M	5 04	E	10 10	2	10	10 $\frac{1}{2}$	6 43	N	4 18	D	AQR	29
37	6	Fr.	6 52	M	5 05	E	10 13	2	11	11 $\frac{1}{2}$	7 16	N	5 42	F	AQR	0
38	7	Sa.	6 51	M	5 06	E	10 15	2	11 $\frac{3}{4}$	—	7 44	K	7 04	G	PSC	1
39	8	D	6 50	L	5 08	F	10 18	2	0 $\frac{1}{4}$	0 $\frac{3}{4}$	8 08	J	8 22	I	PSC	3
40	9	M.	6 49	L	5 09	F	10 20	1	1	1 $\frac{1}{2}$	8 30	H	9 37	K	ARI	4
41	10	Tu.	6 47	L	5 10	F	10 23	1	2	2 $\frac{1}{2}$	8 52	G	10 ^P _M 51	L	ARI	5
42	11	W.	6 46	L	5 12	F	10 26	1	2 $\frac{3}{4}$	3 $\frac{1}{4}$	9 16	E	—	—	TAU	6
43	12	Th.	6 45	L	5 13	F	10 28	1	3 $\frac{3}{4}$	4 $\frac{1}{4}$	9 44	D	12 ^A _M 03	N	TAU	7
44	13	Fr.	6 43	L	5 14	F	10 31	2	4 $\frac{1}{2}$	5 $\frac{1}{4}$	10 17	B	1 13	O	G'M	8
45	14	Sa.	6 42	L	5 15	F	10 33	2	5 $\frac{1}{2}$	6 $\frac{1}{4}$	10 56	B	2 20	P	G'M	9
46	15	D	6 41	L	5 17	F	10 36	2	6 $\frac{1}{2}$	7 $\frac{1}{4}$	11 ^A _M 43	A	3 21	Q	G'M	10
47	16	M.	6 39	L	5 18	F	10 39	2	7 $\frac{1}{2}$	8 $\frac{1}{4}$	12 ^P _M 38	A	4 13	Q	CNC	11
48	17	Tu.	6 38	L	5 19	F	10 41	2	8 $\frac{1}{2}$	9 $\frac{1}{4}$	1 39	B	4 56	P	CNC	12
49	18	W.	6 36	L	5 21	F	10 44	2	9 $\frac{1}{4}$	10	2 42	C	5 31	O	LEO	13
50	19	Th.	6 35	L	5 22	F	10 47	2	10	10 $\frac{1}{2}$	3 47	E	6 00	N	LEO	14
51	20	Fr.	6 34	L	5 23	G	10 50	2	10 $\frac{3}{4}$	11	4 51	F	6 24	M	VIR	15
52	21	Sa.	6 32	K	5 24	G	10 52	2	11 $\frac{1}{4}$	11 $\frac{3}{4}$	5 54	G	6 44	K	—	—
53	22	D	6 31	K	5 26	G	10 55	2	—	0	6 56	I	7 03	J	VIR	16
54	23	M.	6 29	K	5 27	G	10 58	2	0 $\frac{1}{4}$	0 $\frac{1}{2}$	7 59	J	7 21	I	LIB	17
55	24	Tu.	6 27	K	5 28	G	11 01	2	1	1 $\frac{1}{4}$	9 04	K	7 39	G	LIB	18
56	25	W.	6 26	K	5 29	G	11 03	2	1 $\frac{1}{2}$	1 $\frac{3}{4}$	10 12	M	7 59	F	LIB	19
57	26	Th.	6 24	K	5 31	G	11 06	3	2	2 $\frac{1}{2}$	11 ^P _M 22	N	8 22	E	SCO	20
58	27	Fr.	6 23	K	5 32	G	11 09	3	3	3 $\frac{1}{2}$	—	—	8 50	D	SCO	21
59	28	Sa.	6 21	K	5 33	G	11 12	3	3 $\frac{3}{4}$	4 $\frac{1}{4}$	12 ^A _M 34	O	9 ^A _M 27	B	SGR	22

FEBRUARY hath 28 days.

[1970



Now Winter's hand, on sea and land,
Has spread a mantle cold and white;
But Love defies e'en stormy skies,
And Hope still makes the future bright.

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	D	Ser. S. ♂ΨC	Tides {9.8 Skirts 7.9	
2	M.	Pur. Mary • Gdgh. Day	Tides {9.7 sail 8.1	
3	Tu.	The Four Chaplains • Do not marry until April 13	in this	
4	W.	♂♂ Desptse yourself and you will be desptsed	{10.7 9.1 gale.	
5	Th.	♀ Gr. El. • in Peri. Beware of today	This	
6	Fr.	Babe Ruth • Arbor Day, Ariz. born 1895	{11.5 storm 10.2	
7	Sa.	♂at♂ Highest A.M. High Tides today July 21, Aug. 19, Oct. 15, 16		
8	D	Shrove S. ♀ on Allende Eq. 1969	is not warm.	
9	M.	♂♂ Sundials (9-14) about correct	{10.8 10.9 Rains in	
10	Tu.	Shrove Tu. Mardi Gras	Tides {10.7 South, 10.3	
11	W.	Ash W. Lent begins	♂ h♂ Midwest	
12	Th.	Lincoln's B'dy • N.Y.-Paris Auto Race 1908	has	
13	Fr.	World • Eastern Samoa Prayer joins U.S. 1900	Tides {9.6 a 8.1	
14	Sa.	St. Val. USS Essex 1st in Pacific 1813	• Hol. Ariz. drought.	
15	D	1st S. Lent • ♀uns high	Hazy, then	
16	M.	Bataan Re-captured 1945 • Wash. Mass. Day	glazey.	
17	Tu.	Modern Art (alas) came to America 1913	{8.9 Hear, 7.7	
18	W.	♂Apo except catching flies or seas hear, Auld Deer Copernicus	{8.3 9.5 this is	
19	Th.	♀ Stat. Great snow in R.A. of 1717	{9.5 the storm	
20	Fr.	The Full Snow Moon • in part. eclipse	♂at♂ of the	
22	D	2nd S. ♀. Washington's Birthday	{- year. 9.6	
23	M.	♂ on Iwo Jima Eq. photo 1945	Tides {9.1 Nature 9.5	
24	Tu.	MATTHIAS APOSTLE ♂♂	Tides {9.1 in 9.3	
25	W.	Dino Flags turn Fla. Tides Red 1950	{9.4 white 9.1	
26	Th.	♂♀ ♀ Buffalo Bill born 1846	{9.5 is quite 8.8	
27	Fr.	"Liz" Taylor • Longfellow born 1930 • born 1807	Tides {9.4 a 8.4	
28	Sa.	♂Ψ♂ Yellowstone Park est. 1871	{9.4 sight. 8.1	

Pray join Squire Brown and me this morning as philosophers of our woodlands, though hundreds of years since our last virgin timber, today, after cycles of cutting and grazing and recutting, we may have achieved a forest growth more varied and vigorous, more welcome to birds and animals.

Our state, New Hampshire, and it may be true of others, has about a third more woodland than in 1860. Astonishing, we agree, that viewed by plane from Massachusetts to Canada, our little cities are quite lost in forest and lakes, and obscured, thankfully, much of the industrial complex.

This is the forest story. First, the "pioneer forest"—the return of pasture to grey birch, alders, field pines, brush and shrubs. Second, the mixed forests of hard and softwoods, with here and there gatherings of dominant types—beech, maple, pine or hemlock, even iron wood.

But, we note, usually in curious, rugged, precipitous sections not easily timbered, we find the ultimate "climax forests." In our region of vigorously growing hard and softwoods, we achieve quite widely a mixture of sturdy great trees of several species, or venerable, twisted, yellow or black birch or maples. Climax forests, not virgin, but mon-archs indeed.

If the groundhog fails to see his shadow on Feb. 2, the back of winter has been broken.

1970]

MARCH, THIRD MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.		0 /		Days.		0 /		Days.		0 /		Days.		0 /	
	1	7s. 33	7	5 15	13	2 54	19	0 32	25	1 49						
2	7 11	8	4 52	14	2 30	20	0s.08	26	2 14							
3	6 48	9	4 28	15	2 06	21	0N.16	27	2 37							
4	6 25	10	4 05	16	1 43	22	0 39	28	3 01							
5	6 01	11	3 41	17	1 09	23	1 03	29	3 24							
6	5 38	12	3 18	18	0 55	24	1 27	30	3 47							

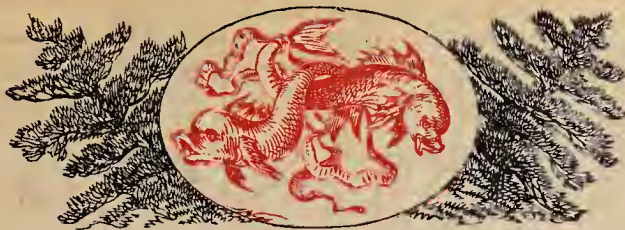
- New Moon, 7th day, 12 h. 43 m., evening, W
- ☽ First Quarter, 14th day, 4 h. 16 m., evening, E.
- Full Moon, 22nd day, 8 h. 53 m., evening, E.
- ☾ Last Quarter, 30th day, 6 h. 05 m., morning, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS—PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	☉ Key	☉ Sets h. m.	☉ Key	Length of Days h. m.	Sun Fast m.	Full Sea. Boston. Morn. h. Eve. h.	☽ Rises h. m.	☽ Key	☽ Sets h. m.	☽ Key	☽ Place	☽ Age
60	1	D	6 20	K	5 34	G	11 15	3	4 $\frac{1}{2}$ 5 $\frac{1}{4}$	1 $\frac{A}{M}$ 46	P	10 $\frac{A}{M}$ 14	B	SGR	23
61	2	M.	6 18	K	5 35	G	11 17	4	5 $\frac{1}{2}$ 6 $\frac{1}{4}$	2 52	Q	11 14	A	CAP	24
62	3	Tu.	6 16	K	5 37	G	11 20	4	6 $\frac{3}{4}$ 7 $\frac{1}{2}$	3 49	P	12 $\frac{P}{M}$ 26	B	CAP	25
63	4	W.	6 15	K	5 38	G	11 23	4	7 $\frac{3}{4}$ 8 $\frac{1}{2}$	4 35	O	1 47	C	AQR	26
64	5	Th.	6 13	J	5 39	H	11 26	4	8 $\frac{3}{4}$ 9 $\frac{1}{2}$	5 12	N	3 10	E	AQR	27
65	6	Fr.	6 11	J	5 40	H	11 29	5	9 $\frac{3}{4}$ 10 $\frac{1}{4}$	5 42	L	4 32	G	PSC	28
66	7	Sa.	6 10	J	5 41	H	11 32	5	10 $\frac{1}{2}$ 11	6 07	K	5 52	H	PSC	29
67	8	D	6 08	J	5 43	H	11 34	5	11 $\frac{1}{2}$ —	6 30	I	7 10	J	PSC	1
68	9	M.	6 06	J	5 44	H	11 37	5	0 0 $\frac{1}{4}$	6 52	G	8 26	K	ARI	2
69	10	Tu.	6 05	J	5 45	H	11 40	6	0 $\frac{3}{4}$ 1 $\frac{1}{4}$	7 16	F	9 42	M	ARI	3
70	11	W.	6 03	J	5 46	H	11 43	6	1 $\frac{1}{2}$ 2	7 43	D	10 $\frac{P}{M}$ 55	O	TAU	4
71	12	Th.	6 01	J	5 47	H	11 46	6	2 $\frac{1}{4}$ 2 $\frac{3}{4}$	8 14	C	—	—	TAU	5
72	13	Fr.	6 00	J	5 48	H	11 49	6	3 3 $\frac{3}{4}$	8 52	B	12 $\frac{A}{M}$ 06	P	G'M	6
73	14	Sa.	5 58	J	5 50	H	11 52	7	4 4 $\frac{1}{2}$	9 37	A	1 11	P	G'M	7
74	15	D	5 56	J	5 51	H	11 55	7	5 5 $\frac{1}{2}$	10 30	A	2 07	Q	CNC	8
75	16	M.	5 54	I	5 52	I	11 57	7	6 6 $\frac{3}{4}$	11 $\frac{A}{M}$ 29	B	2 54	P	CNC	9
76	17	Tu.	5 53	I	5 53	I	12 00	7	7 7 $\frac{3}{4}$	12 $\frac{P}{M}$ 32	C	3 32	P	LEO	10
77	18	W.	5 51	I	5 54	I	12 03	8	8 8 $\frac{1}{2}$	1 36	D	4 02	N	LEO	11
78	19	Th.	5 49	I	5 55	I	12 06	8	8 $\frac{3}{4}$ 9 $\frac{1}{4}$	2 40	E	4 28	M	LEO	12
79	20	Fr.	5 48	I	5 57	I	12 09	8	9 $\frac{1}{2}$ 10	3 44	G	4 49	L	VIR	13
80	21	Sa.	5 46	I	5 58	I	12 12	9	10 $\frac{1}{4}$ 10 $\frac{1}{2}$	4 47	H	5 09	K	VIR	14
81	22	D	5 44	I	5 59	I	12 15	9	10 $\frac{3}{4}$ 11 $\frac{1}{4}$	5 50	I	5 27	I	LIB	15
82	23	M.	5 42	I	6 00	I	12 18	9	11 $\frac{1}{2}$ 11 $\frac{3}{4}$	6 55	K	5 46	H	—	—
83	24	Tu.	5 41	I	6 01	I	12 21	10	— 0	8 02	L	6 05	G	LIB	16
84	25	W.	5 39	I	6 02	I	12 23	10	0 $\frac{1}{4}$ 0 $\frac{3}{4}$	9 12	N	6 25	E	LIB	18
85	26	Th.	5 37	I	6 03	I	12 26	10	1 1 $\frac{1}{2}$	10 24	O	6 54	D	SCO	19
86	27	Fr.	5 35	H	6 04	J	12 29	10	1 $\frac{3}{4}$ 2 $\frac{1}{4}$	11 $\frac{P}{M}$ 36	P	7 28	C	SCO	20
87	28	Sa.	5 34	H	6 06	J	12 32	11	2 $\frac{1}{2}$ 3	—	—	8 11	B	SGR	21
88	29	D	5 32	H	6 07	J	12 35	11	3 $\frac{1}{4}$ 4	12 $\frac{A}{M}$ 44	Q	9 06	A	SGR	22
89	30	M.	5 30	H	6 08	J	12 38	11	4 $\frac{1}{4}$ 5	1 43	P	10 13	B	CAP	23
90	31	Tu.	5 28	H	6 09	J	12 41	12	5 $\frac{1}{4}$ 6	2 $\frac{A}{M}$ 31	O	11 $\frac{A}{M}$ 28	C	CAP	24

MARCH hath 31 days.

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Surly and hoarse, with blustering force,
 Winter yet strives to hold his sway;
 Yet all in vain, for soon again
 His angry storms will pass away.

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	D	3rd S. L. • St. David	Hol. Neb. <i>In, like</i>	
2	M.	rides • Mt. Ranier	Hol. Calif. <i>a lamb,</i>	
3	Tu.	Stat. • Premier Birth of	9.7 <i>slam</i>	
4	W.	Ψ in R.A. • a Nation 1915	8.3 <i>bang.</i>	
5	Th.	There's more pleasure in loving than in being loved	10.1 8.8 <i>A few</i>	
6	Fr.	Hall of Fame opened N.Y. Univ. 1900	10.5 9.5 <i>nips</i>	
7	Sa.	in 1st Auto on streets Peri. of Detroit	10.9 10.2 <i>to the</i>	
8	D	Sun's Total • Cat ♄ • Burbank Eclipse • Bonneville, N.Y.	Day Calif. <i>to the</i>	
9	M	4th S. L. • Disaster 1794	Eq. <i>lips good</i>	
10	Tu.	Maple sap • Moody & Sanky run begins • London 1875	<i>lips good</i>	
11	W.	♁♃ • ♁♃ 11.1 Blizzard • The 3 witches of of 1888 • Belvoir burnt 1618	10.6 <i>for your hips</i>	
12	Th.	Saint • U.S. Girl Scouts Gregory • Fd. Savannah 1912	• <i>this</i>	
13	Fr.	Standard Time adopted U.S. 1884	Tides } 10.0 8.5 <i>eclipse.</i>	
14	Sa.	runs [15 Me. adm.] high [th Union, 1820]	9.4 7.9 <i>Snows</i>	
15	D	Pass. S. • The Ides begin	Hol. Tenn. <i>again,</i>	
16	M.	♁♂ Beware of Old colind	<i>tornadoes begin.</i>	
17	Tu.	St. Patrick • Day equals Evac. Day ♁♂ night	<i>Floods,</i>	
18	W.	in Mars overtook Apo. Saturn yesterday	8.6 7.8 <i>muds,</i>	
19	Th.	St. Swallows return Joseph San Capistrano, Cal.	8.9 8.2 <i>and</i>	
20	Fr.	Spring begins • Sun en- 7.57 P.M. ters Aries	<i>buds.</i>	
21	Sa.	[22 Earliest poss. • 1st Easter date	Eq.] 9.3 9.0 <i>Now</i>	
22	D	Palm S. • Purim • Hol. Okla. <i>peasant</i>		
23	M.	♁♃ • ♁♃ Sup. 9.5 Phillipines indep. 1934	9.7 <i>this'll be</i>	
24	Tu.	effective July 4, 1946	9.5 <i>durned</i>	
25	W.	ANNUNC. Lady • ♁♃ unpleasant. Day		
26	Th.	N. Bowditch • Hol. 9.9 born 1773 Haw. 9.1	<i>Beep, beep</i>	
27	Fr.	Good Fri. • ♁♃ • ♁♃ out goes "Ike" left • Stephen Leacock	<i>March</i>	
28	Sa.	us 1969 • died 1944		
29	D	Easter S. • rides Tides 9.7 Anyone can keep house better than mother	8.3 <i>in a</i>	
30	M.	until she tries. 9.5 Alaska 8.2	Hol. N.C. 9.6 Alaska 8.2	
31	Tu.		8.8 <i>busted ole jeep.</i>	

In a section of old Boston a pedestrian overpass goes above the whirling traffic of Charles Street Circle to the station platform. One rainy morning I saw a blind man before me on the overpass, one hand following the railing, his white cane in the other. We walked together to the platform.

For me, as for all of us, I am sure, there is a special pity for the blind—the dark glasses, the half lift of the face toward light he will never know, the drawn, intense listening in the pale cheeks. But this young man looked simply glad to be alive. Soon I understood. His doctors had told him that in a few weeks they would operate on his eyes—and perhaps, just perhaps, he would see. They promised nothing, but he *knew* he would see again. My station came, and I wished him well—with all my heart. But as the door closed, I realized I had neither his name nor address.

A year passed. Then one day I got on the subway at Park Street, the last station before the dingy car, that worm of tunnels and darkness, would burst into the sunshine and stop on the bright bridge above. The door opened to a single passenger. A white cane tapped the floor—a hand felt for the safety of the end seat. It was the blind boy.

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APRIL, FOURTH MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.		0 /		Days.		0 /		Days.		0 /		Days.		0 /	
	1	4	N.34	7	6	41	13	9	04	19	11	12	25	13	13	13
2	4	57	8	7	14	14	9	26	20	11	32	26	13	32	26	
3	5	20	9	7	36	15	9	47	21	11	53	27	13	51	27	
4	5	43	10	7	58	16	10	09	22	12	13	28	14	10	28	
5	6	06	11	8	20	17	10	30	23	12	33	29	14	29	29	
6	6	28	12	8	42	18	10	51	24	12	53	30	14	47	30	

- New Moon, 5th day, 11 h. 09 m., evening, W.
- ☽ First Quarter, 13th day, 10 h. 44 m., morning, E.
- ☾ Full Moon, 21st day, 11 h. 21 m., morning, W.
- ☾ Last Quarter, 28th day, 12 h. 18 m., evening, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	☉ Key	☉ Sets h. m.	☉ Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston, Morn. h. Eve. h.	☽ Rises h. m.	☽ Key	☽ Sets h. m.	☽ Key	☽ Place	☽ Age	
91	1	W.	5 27	H	6 10	J	12 43	12	6½	7	3 _M 10	N	12 _M 48	D	AQR	25
92	2	Th.	5 25	H	6 11	J	12 46	12	7½	8	3 41	M	2 07	F	AQR	26
93	3	Fr.	5 23	H	6 12	J	12 49	13	8½	9	4 07	K	3 26	G	PSC	27
94	4	Sa.	5 22	H	6 14	J	12 52	13	9½	10	4 30	J	4 43	I	PSC	28
95	5	D	5 20	H	6 15	J	12 55	13	10¼	10¾	4 53	H	5 59	K	ARI	29
96	6	M.	5 18	H	6 16	J	12 58	13	11¼	11½	5 16	G	7 15	L	ARI	1
97	7	Tu.	5 16	H	6 17	J	13 00	14	—	0	5 41	E	8 31	N	TAU	2
98	8	W.	5 15	G	6 18	K	13 03	14	0¼	0¾	6 11	D	9 45	O	TAU	3
99	9	Th.	5 13	G	6 19	K	13 06	14	1	1½	6 46	B	10 54	P	G'M	4
100	10	Fr.	5 11	G	6 20	K	13 09	15	1¾	2½	7 29	A	11 _M 56	Q	G'M	5
101	11	Sa.	5 10	G	6 21	K	13 12	15	2½	3¼	8 20	A	—	—	CNC	6
102	12	D	5 08	G	6 23	K	13 14	15	3½	4	9 18	B	12 _M 48	Q	CNC	7
103	13	M.	5 06	G	6 24	K	13 17	15	4¼	5	10 19	B	1 30	P	CNC	8
104	14	Tu.	5 05	G	6 25	K	13 20	15	5¼	6	11 _M 24	D	2 03	O	LEO	9
105	15	W.	5 03	G	6 26	K	13 23	16	6¼	7	12 _M 28	E	2 31	N	LEO	10
106	16	Th.	5 02	G	6 27	K	13 25	16	7¼	7¾	1 31	F	2 53	L	VIR	11
107	17	Fr.	5 00	G	6 28	K	13 28	16	8	8½	2 34	G	3 13	K	VIR	12
108	18	Sa.	4 58	G	6 29	K	13 31	17	9	9¼	3 37	I	3 32	J	LIB	13
109	19	D	4 57	G	6 30	K	13 34	17	9½	10	4 42	J	3 50	H	LIB	14
110	20	M.	4 55	F	6 32	L	13 36	17	10¼	10½	5 49	L	4 09	G	LIB	15
111	21	Tu.	4 54	F	6 33	L	13 39	17	11	11¼	6 59	M	4 31	F	SCO	16
112	22	W.	4 52	F	6 34	L	13 42	17	11½	11¾	8 11	N	4 57	D	—	17
113	23	Th.	4 51	F	6 35	L	13 44	18	—	0½	9 25	P	5 29	C	SCO	18
114	24	Fr.	4 49	F	6 36	L	13 47	18	0½	1	10 35	P	6 09	B	SGR	—
115	25	Sa.	4 48	F	6 37	L	13 49	18	1¼	2	11 _M 38	P	7 01	A	SGR	19
116	26	D	4 46	F	6 38	L	13 52	18	2	2¾	—	—	8 08	B	CAP	20
117	27	M.	4 45	F	6 39	L	13 55	18	3	3¾	12 _M 29	P	9 18	C	CAP	21
118	28	Tu.	4 43	F	6 41	L	13 57	18	4	4¾	1 10	O	10 36	D	AQR	22
119	29	W.	4 42	F	6 42	L	14 00	18	5	5¾	1 43	M	11 _M 54	E	AQR	23
120	30	Th.	4 41	F	6 43	L	14 02	19	6¼	6¾	2 _M 10	L	1 _M 10	G	PSC	24



No more the gloom o'er Winter's tomb
Is darkened by oppressing fears;
The sun beams high on changing sky,
And Nature smiles amid her tears.

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	W.	All Fools Day Voice of the Turtle {9.7	Wild &	<p>In the cycle of seasons are interludes more or less predictable—plodding intervals—of less wonder, usually, than a pedantic barometer.</p> <p>But in Spring, choosing its own magic coming, is a time—a few days at most—when even man, perhaps, with his crocus or catkin—but all God's other creatures surely—may know without restraint the utter joy of living.</p> <p>To the birds who have winged so far—so dangerously, so wearily—it is the benison of sun, the languid bough, the sweet, warm, safe, wet earth, the ruffle of breeze in tired wings—days when they may sing (and now in all the days of the year) for sheer joy of singing. Not yet the mating and nesting. Squirrels linger like drunkards over the dripping sweetness of elm tips. Partridge bud undisturbed in the Baldwin trees; crows fly aimlessly or are raucous in camp meeting.</p> <p>There is a kind of joyous nonsense about. In the puddle at our lawn's edge black ducks splash, happy as in a sensible marsh. A raccoon, creature of night, but fuddled and foolish from hibernation, makes a pendulum of the suet bag, nibbling at last in the sun. Our native woodcock waddles, like a wet doughnut, through the snow to find a worm. Oh Spring days—so mad, so brief—enchanted!</p>
2	Th.	Shad • Craft needs clothes, • Hol. Run truth goes naked • Fla.	wooly,	
3	Fr.	♄ in • ♃ at ♁ "Bountineers" exec. 1801	waves	
4	Sa.	Geese flying ♄ on Tides {10.5 North Eq. {10.6	unruly.	
5	D	Low S. St. Lawrence Sea-way open 1967	Sailors	
6	M.	Caln born • Notice crescent moon in West (7th)	beware,	
7	Tu.	♄ ♃ • ♄ ♃ • ♄ ♃ • } fog		
8	W.	♄ ♃ Moon, Mercury, Venus, Mars, Saturn close neighbors		
9	Th.	LaSalle named Miss. R. Valley La. 1682	grounds planes,	
10	Fr.	Peepers • Pittsburg Pa. {10.4 peeping • Fire, 1845 {8.9	storms	
11	Sa.	♄ ♃ • ♄ ♃ • ♄ ♃ • } upsel		
12	D	2nda. E. ♄ ♃ • ♄ ♃ • ♄ ♃ • } sea lanes.		
13	M.	Met. Museum • Lowest P.M. • Hol. Ala. N.Y.C. 1870 high tide • Mo. Va.		
14	Tu.	O.K. to marry • Pyle • Hol. Apr. 14-May 11 1945 • Fla. All's well		
15	W.	♄ in Sardines {8.4 here's a warm		
16	Th.	♄ Apo. running {7.8 "They say so" usually means {8.5 it wasn't said at all {8.1 spell.		
17	Fr.	♄ at ♁ Mercury setting about 6.45 P.M.	Oh spring,	
18	Sa.	Maple sap run over ♄ Gr. El. • ♄ on E. • ♄ on Eq.	where	
19	D	3rda. E. Day Patriots' • ♄ ♃ • ♄ ♃ • } Me. is		
20	M.	♄ at ♁ 21st-The Full Pink Moon	thy sting?	
21	Tu.	Passover first day • ♄ ♃ • ♄ ♃ • } Hol. Tex. This		
22	W.	Russlans ent. • Wm. Cardinal Berlin, 1945 • O'Connell 1944	storm,	
23	Th.	Saint George • ♄ ♃ • ♄ ♃ • } Jupiter now eve's star sets 5.00 A.M. I		
24	Fr.	[26 Confed. Memorial Day] th Hol. Fla. Ga. Miss.	shout,	
25	Sa.	Mark, • Latest possible • Easter Date	rides blows	
26	D	4tha. E. DST BEGINS	all the	
27	M.	Passover • Fast Day {10.1 7th Day • Hol. N.H. {8.6	ice out.	
28	Tu.	Passover • Mars • Stat. Last Day • conceived ♄ in R.A.	Sun-	
29	W.	♄ in The zipper {9.7 ♄ Perl pat. 1913 {8.9	shine this	
30	Th.	♄ at ♁ Casey Jones {9.7 immortal. 1900 {9.3	time.	

"Spring forward, fall back" — set clocks ahead one hour before retiring on the 25th.

1970]

MAY, FIFTH MONTH.

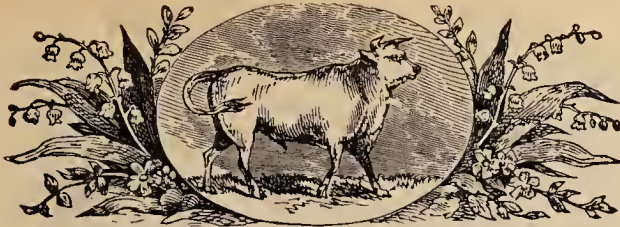
ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.		0 /		Days.		0 /		Days.		0 /		Days.		0 /	
	1	15	N.06	7	16 50	13	18 24	-19	19 46	25	20 58					
2	15	24	8	17 06	14	18 38	20	19 59	26	21 08						
3	15	42	9	17 22	15	18 52	21	20 12	27	21 19						
4	15	59	10	17 38	16	19 06	22	20 24	28	21 28						
5	16	16	11	17 54	17	19 20	23	20 36	29	21 38						
6	16	33	12	18 09	18	19 33	24	20 48	30	21 47						

- New Moon, 5th day, 9 h. 51 m., morning, E.
- ☽ First Quarter, 13th day, 5 h. 26 m., morning, W.
- Full Moon, 20th day, 10 h. 38 m., evening, E.
- ☾ Last Quarter, 27th day, 5 h. 32 m., evening, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	☉ Key	☉ Sets h. m.	☉ Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn. Eve. h. h.	☽ Rises h. m.	☽ Key	☽ Sets h. m.	☽ Key	☽ Place	☽ Age
121	1	Fr.	4 39	F	6 44	L	14 05	19	7 ¹ / ₄ 7 ³ / ₄	2 ^A _M 3 ⁴	J	2 ^P _M 25	H	PSC	25
122	2	Sa.	4 38	F	6 45	M	14 07	19	8 ¹ / ₄ 8 ³ / ₄	2 56	I	3 40	J	ARI	26
123	3	D	4 37	E	6 46	M	14 10	19	9 ¹ / ₄ 9 ¹ / ₂	3 18	G	4 54	K	ARI	27
124	4	M.	4 35	E	6 47	M	14 12	19	10 10 ¹ / ₄	3 41	F	6 09	M	TAU	28
125	5	Tu.	4 34	E	6 48	M	14 14	19	11 11	4 09	D	7 23	O	TAU	0
126	6	W.	4 33	E	6 49	M	14 17	19	11 ³ / ₄ 11 ³ / ₄	4 41	C	8 34	P	TAU	1
127	7	Th.	4 32	E	6 51	M	14 19	19	— 0 ¹ / ₂	5 21	B	9 40	Q	G'M	2
128	8	Fr.	4 30	E	6 52	M	14 21	19	0 ¹ / ₂ 1 ¹ / ₄	6 09	A	10 37	Q	G'M	3
129	9	Sa.	4 29	E	6 53	M	14 24	19	1 ¹ / ₄ 2	7 05	A	11 ^P _M 24	P	CNC	4
130	10	D	4 28	E	6 54	M	14 26	19	2 2 ³ / ₄	8 06	B	—	—	CNC	5
131	11	M.	4 27	E	6 55	M	14 28	19	3 3 ¹ / ₂	9 10	C	12 ^A _M 01	O	LEO	6
132	12	Tu.	4 26	E	6 56	M	14 30	19	3 ³ / ₄ 4 ¹ / ₂	10 15	D	12 31	N	LEO	7
133	13	W.	4 25	E	6 57	M	14 33	19	4 ¹ / ₂ 5 ¹ / ₄	11 ^A _M 18	F	12 55	M	LEO	8
134	14	Th.	4 24	E	6 58	M	14 35	19	5 ¹ / ₂ 6 ¹ / ₄	12 ^P _M 21	G	1 16	K	VIR	9
135	15	Fr.	4 22	E	6 59	N	14 37	19	6 ¹ / ₂ 7	1 23	H	1 35	J	VIR	10
136	16	Sa.	4 21	D	7 00	N	14 39	19	7 ¹ / ₄ 7 ³ / ₄	2 27	I	1 54	I	LIB	11
137	17	D	4 20	D	7 01	N	14 41	19	8 ¹ / ₄ 8 ¹ / ₂	3 32	K	2 13	H	LIB	12
138	18	M.	4 20	D	7 02	N	14 43	19	9 9 ¹ / ₄	4 41	L	2 33	F	SCO	13
139	19	Tu.	4 19	D	7 04	N	14 45	19	9 ³ / ₄ 10	5 53	M	2 57	E	SCO	15
140	20	W.	4 18	D	7 05	N	14 47	19	10 ¹ / ₂ 10 ¹ / ₂	7 07	O	3 27	D	SGR	16
141	21	Th.	4 17	D	7 06	N	14 49	19	11 ¹ / ₄ 11 ¹ / ₂	8 21	P	4 04	C	—	—
142	22	Fr.	4 16	D	7 07	N	14 51	19	— 0	9 28	P	4 53	B	SGR	17
143	23	Sa.	4 15	D	7 07	N	14 52	19	0 ¹ / ₄ 0 ³ / ₄	10 25	P	5 55	B	CAP	18
144	24	D	4 14	D	7 08	N	14 54	19	1 1 ³ / ₄	11 10	O	7 07	B	CAP	19
145	25	M.	4 14	D	7 09	N	14 56	19	2 2 ¹ / ₂	11 ^P _M 45	N	8 25	D	CAP	20
146	26	Tu.	4 13	D	7 10	N	14 57	19	2 ³ / ₄ 3 ¹ / ₂	—	—	9 44	E	AQR	21
147	27	W.	4 12	D	7 11	N	14 59	19	3 ³ / ₄ 4 ¹ / ₂	12 ^A _M 14	L	11 ^A _M 01	F	AQR	22
148	28	Th.	4 12	D	7 12	N	15 00	19	4 ³ / ₄ 5 ¹ / ₂	12 38	K	12 ^P _M 16	H	PSC	23
149	29	Fr.	4 11	D	7 13	N	15 02	19	6 6 ¹ / ₂	1 00	I	1 29	J	PSC	24
150	30	Sa.	4 10	D	7 13	N	15 03	18	7 7 ¹ / ₂	1 22	H	2 21	K	ARI	25
151	31	D	4 10	D	7 14	N	15 04	18	8 8 ¹ / ₄	1 ^A _M 45	F	3 ^P _M 53	L	ARI	26



Hail, joyous hours of birds and flowers,
 And emerald sheen of bush and tree!
 The slumbering Spring is wakening,
 And gladness smiles o'er land and sea.

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	Fr.	Philip & James \odot on Eq.	Law Day	<i>I sigh,</i>
2	Sa.	Kentucky Derby Virginia Gold Cup δ \odot		<i>I cry</i> { 9.8 10.4
3	D	Rog. S. Invention of Cross	Tides	{ 9.9 10.8 } <i>a</i>
4	M.	Now the bloom- ing blossoms	2, 3 U.S. torn occ. this mo.	Hol. R.I.
5	Tu.	Mohamet born 570 AD	{ 9.9 11.0	<i>wicked storm</i>
6	W.	Moses on Mt. Sinai	Do not marry May 12-June 1	{ 7.7 10.9 } <i>is nigh.</i>
7	Th.	Asc. D. \odot \odot \odot		{ 9.4 10.6 } <i>No</i>
8	Fr.	\odot runs high	German surr. 1945	Tid ²⁴ { 10.6 9.0 } <i>cheer</i>
9	Sa.	\odot \odot \odot Inf.	\odot Solar transit	\odot \odot δ <i>here</i>
10	D	Ista. A. Mother's Day	Hol. N.C., S.C.	<i>dear.</i>
11	M.	Mackerel in market	Humming birds 42 deg. n. lat.	<i>Grass is</i>
12	Tu.	\odot in Apo.	The three chilly saints make it cold (12-14)	<i>green</i>
13	W.	Dark Day, 1830	The easiest guy to deceive is yourself	<i>may-</i>
14	Th.	\odot at δ	Saturn rising about 4 A.M.	<i>flowers blush</i>
15	Fr.	St. Torquatus	Olive tree, Cadiz, always blooms on this day.	<i>un-</i>
16	Sa.	Armed Forces	\odot \odot \odot \odot on Eq.	Tides { 8.4 8.9 } <i>seen.</i>
17	D	Whit. Pent.	\odot δ δ	{ 8.5 9.8 } <i>Rains</i>
18	M.	\odot \odot "In God We Trust"	rest. to coins 1908	<i>terriblee</i>
19	Tu.	1st Royal Court New World 1939	Dark Day 1780 (Conn.)	<i>in St.</i>
20	W.	The Full Flower Moon	Hol. N.C.	δ Ψ \odot <i>Louie.</i>
21	Th.	\odot Ψ \odot Stat in R.A.	{ 9.2 10.7 }	<i>and D. C.</i>
22	Fr.	\odot rides low	[23rd descent of Holy Spirit 34 A.D.]	<i>Eggs</i>
23	Sa.	1st thru train	Boston-S.F. 39 days - 1870	<i>forsooth</i>
24	D	Trin. S.	Longest twilights now thru July 23	<i>will fry</i>
25	M.	\odot in Peri.	Babe Ruth's 714th homer 1935	Hol. Mass. <i>on</i>
26	Tu.	\odot Envy shoots at others but wounds only herself	{ 10.4 9.2 }	<i>the roof.</i>
27	W.	\odot at δ Sub. Scorpion	falls to surface 1968	<i>Frosty</i>
28	Th.	Corpus Christi \odot δ δ	Five Dionnes born 1934	<i>& cools</i>
29	Fr.	\odot on Hillary on Mt. Everest	1953	{ 9.5 9.9 } <i>'til rain</i>
30	Sa.	Mem. Day	Oklnawa 1945	{ 9.9 9.4 } <i>makes</i>
31	D	2nd a. β .	Dunkerque evac. 1940	<i>deep pools.</i>

With each passing year, I more surely know that I have not stored away things to retire to, but have simply never lost the joy of things I grew up to love and use.

I was a country boy and found a natural "feel" for an axe, a fishing rod (if only an alder whip) and a gun—as I grew up to it. The woods, the trout brook, the great swamp—these I could explore as I would. Sometimes father—far more often my uncle (older then than I am now)—joined me. I never felt that he was teaching me. He knew nature so well, loved it so deeply, he always walked a forest path or approached a beaver dam with a sense of exploration and anticipation. Then so must I.

How often have we stood knee deep in the marsh for the pure joy of the red-winged blackbirds bobbing on the cattails. Carree—carree—caree—the world was a bubble of sound. He loved birds. Crows came to his caw, the quail to his curious little whistles, so cunningly spaced; partridge to his special "biddy" call. He quacked the ducks in from the marshes, honked the geese down from the lonely pyramids of the sky. Only this I could never do.

1970]

JUNE, SIXTH MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.			Days.			Days.			Days.					
	0	/		0	/		0	/		0	/				
1	22	N.	04	7	22	46	13	23	13	19	23	26	25	23	24
2	22		12	8	22	51	14	23	16	20	23	26	26	23	22
3	22		19	9	22	56	15	23	19	21	23	27	27	23	20
4	22	27	10	10	23	01	16	23	21	22	23	26	28	23	17
5	22	33	11	11	23	05	17	23	23	23	23	26	29	23	14
6	22	40	12	12	23	10	18	23	25	24	23	25	30	23	10

- New Moon, 3rd day, 9 h. 21 m., evening, W.
- ☽ First Quarter, 11th day, 11 h. 07 m., evening, W.
- Full Moon, 19th day, 7 h. 28 m., morning, W.
- ☾ Last Quarter, 25th day, 11 h. 01 m., evening, E.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	☉ Key	☉ Sets h. m.	☉ Key	Length of Days h. m.	Sun. Fast	Full Sea. Morn. Eve.	☽ Rises h. m.	☽ Key	☽ Sets h. m.	☽ Key	☽ Place	☽ Age
152	1	M.	4 09	D	7 15	N	15 06	18	9	9 $\frac{1}{4}$	2 $\frac{A}{M}$ 10	E	5 $\frac{F}{M}$ 07	N	TAU 27
153	2	Tu.	4 09	D	7 16	O	15 07	18	9 $\frac{3}{4}$	10	2 40	C	6 18	O	TAU 28
154	3	W.	4 09	C	7 16	O	15 08	18	10 $\frac{1}{2}$	10 $\frac{3}{4}$	3 16	B	7 26	P	G' M 0
155	4	Th.	4 08	C	7 17	O	15 09	18	11 $\frac{1}{2}$	11 $\frac{1}{2}$	4 01	A	8 27	Q	G' M 1
156	5	Fr.	4 08	C	7 18	O	15 10	17	—	0	4 54	A	9 17	P	CNC 2
157	6	Sa.	4 07	C	7 19	O	15 11	17	0 $\frac{1}{4}$	0 $\frac{3}{4}$	5 53	B	9 58	P	CNC 3
158	7	D	4 07	C	7 19	O	15 12	17	1	1 $\frac{1}{2}$	6 57	C	10 31	N	CNC 4
159	8	M.	4 07	C	7 20	O	15 13	17	1 $\frac{3}{4}$	2 $\frac{1}{4}$	8 01	D	10 57	M	LEO 5
160	9	Tu.	4 07	C	7 20	O	15 14	17	2 $\frac{1}{2}$	3	9 06	E	11 19	L	LEO 6
161	10	W.	4 06	C	7 21	O	15 15	16	3 $\frac{1}{4}$	3 $\frac{3}{4}$	10 09	E	11 39	K	VIR 7
162	11	Th.	4 06	C	7 21	O	15 15	16	4	4 $\frac{1}{2}$	11 $\frac{A}{M}$ 10	H	11 $\frac{P}{M}$ 57	I	VIR 8
163	12	Fr.	4 06	C	7 22	O	15 16	16	4 $\frac{3}{4}$	5 $\frac{1}{2}$	12 $\frac{P}{M}$ 12	I	—	—	LIB 9
164	13	Sa.	4 06	C	7 23	O	15 16	16	5 $\frac{3}{4}$	6 $\frac{1}{4}$	1 16	K	12 $\frac{A}{M}$ 15	H	LIB 10
165	14	D	4 06	C	7 23	O	15 17	16	6 $\frac{1}{2}$	7	2 22	L	12 35	G	LIB 11
166	15	M.	4 06	C	7 23	O	15 17	15	7 $\frac{1}{2}$	7 $\frac{3}{4}$	3 31	M	12 57	F	SCO 12
167	16	Tu.	4 06	C	7 24	O	15 18	15	8 $\frac{1}{4}$	8 $\frac{1}{2}$	4 44	O	1 23	D	SCO 13
168	17	W.	4 06	C	7 24	O	15 18	15	9 $\frac{1}{4}$	9 $\frac{1}{2}$	5 59	P	1 57	C	SGR 14
169	18	Th.	4 06	C	7 24	O	15 18	15	10	10 $\frac{1}{4}$	7 10	P	2 41	B	SGR 15
170	19	Fr.	4 06	C	7 25	O	15 19	15	10 $\frac{3}{4}$	11	8 13	P	3 38	B	—
171	20	Sa.	4 06	C	7 25	O	15 19	14	11 $\frac{3}{4}$	—	9 04	O	4 48	B	CAP 16
172	21	D	4 07	C	7 25	O	15 19	14	0	0 $\frac{1}{2}$	9 44	N	6 06	C	CAP 17
173	22	M.	4 07	C	7 25	O	15 19	14	0 $\frac{3}{4}$	1 $\frac{1}{2}$	10 16	M	7 28	D	AQR 18
174	23	Tu.	4 07	C	7 26	O	15 19	14	1 $\frac{1}{2}$	2 $\frac{1}{4}$	10 42	K	8 48	F	AQR 19
175	24	W.	4 07	C	7 26	O	15 18	13	2 $\frac{1}{2}$	3 $\frac{1}{4}$	11 05	J	10 05	H	PSC 20
176	25	Th.	4 08	C	7 26	O	15 18	13	3 $\frac{1}{2}$	4	11 27	H	11 $\frac{A}{M}$ 20	I	PSC 21
177	26	Fr.	4 08	C	7 26	O	15 18	13	4 $\frac{1}{2}$	5	11 $\frac{P}{M}$ 49	F	12 $\frac{P}{M}$ 32	K	ARI 22
178	27	Sa.	4 08	C	7 26	O	15 18	13	5 $\frac{1}{2}$	6	—	—	1 45	L	ARI 23
179	28	D	4 09	C	7 26	O	15 17	13	6 $\frac{1}{2}$	7	12 $\frac{A}{M}$ 13	E	2 57	N	TAU 25
180	29	M.	4 09	C	7 26	O	15 17	12	7 $\frac{1}{2}$	8	12 42	D	4 08	O	TAU 26
181	30	Tu.	4 10	C	7 26	O	15 16	12	8 $\frac{1}{2}$	8 $\frac{3}{4}$	1 $\frac{A}{M}$ 15	C	5 $\frac{P}{M}$ 17	P	G' M 27

JUNE hath 30 days.

[1970



On leafy bough the songsters now
Trill out their music on the air;
From Flora's wreaths a perfume breathes,
And Beauty reigneth everywhere.

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1 M.		Nicomede ☿♁ Tides { 9.9 10.6	<i>La pluie</i>	
2 Tu.	♁♁	O.K. to marry { 9.2 until Nov. 30 10.7	<i>becomes a</i>	
3 W.		Jefferson Hol. Fla., La., Miss. { 9.1 Davis Day S.C., Tenn., Tex., Va. 10.6		A true garden is your possession, and it possesses you. Rarely do you share it.
4 Th.	♁ Gr. El. ♀ W.	♁ runs <i>Fat paunch</i> , <i>high lean pate</i> , <i>Texas</i>		In this column some years ago, I mentioned two French ladies—Madame Denise with whom we were visiting, and her neighbor, Madame Delphine. I recall them now because they—and their gardens—illustrate my point.
5 Fr.		Sacred Heart ☿♁ Kitchener Gale 1916	<i>delugee.</i>	
6 Sa.		Invasion D Day ☿♁ { 10.2 8.7	<i>Bide a wee,</i>	
7 D		2nda. T. Snowed hard 1816 20° Danville, Vt.	<i>blue</i>	
8 M.		<i>Be the season early or late crops all same by this date</i>	<i>skies</i>	
9 Tu.		♁ in Laurel blooms in Ado. North country	<i>you'll</i>	
10 W.		Shevuoth • ♁at♁ Tides { 9.0 8.3	<i>see.</i>	No morning passed but these neighbors exchanged over the little ivied wall they owned in common the day's courtesies, and, perhaps, a blossom. On occasion Madame Delphine might say, "Madame Denise, bring me a pot of your loam and I will give you a pot of my new seedlings." So Madame Denise would fill her pot with loam, walk to her little white gate, down her pebbled walk, and over the bit of lawn to Madame Delphine's pebbled walk and her little white gate. Then the exchange of the pot of soil for the pot of seedlings.
11 Th.		♁ Stat. Strawberries Hol. in R.A. in season Haw.	<i>Now</i>	
12 Fr.		♁ Stat. on Earliest sun- in R.A. ♁ Eq. rises 11-20	<i>all's</i>	
13 Sa.		♁♁ Virgin Mary died A.D. 40 Tides { 8.3 8.8	<i>plush</i>	
14 D		4tha. ♀. Flag Hol. Day Pa. Tides { 8.2 9.1	<i>and</i>	
15 M.		♁♁ Franklin discovered elec. 1752 — See pg. 9	<i>lush.</i>	
16 Tu.		Daily thunder Leland Stan- storms Florida ford d. 1893	<i>Make</i>	
17 W.		Bunker's Hill Day ☿♁♁ Hol. Mass. Suff Co. { 8.6 10.3	<i>no</i>	
18 Th.		Longest Days 19-23 Hot New Eng. 1749 { 8.8 10.7	<i>mistake,</i>	
19 Fr.		The Full Hot Moon ☿♁ rides Severe thun- der storms 1870	<i>two</i>	
20 Sa.		Summer Begins (21st) Hol. 2.43 P.M. W. Va.	<i>big</i>	
21 D		4tha. T. • Father's Day { 11.2 9.5	<i>storms</i>	
22 M.		Latest sunsets 23rd-July 1 • Organic Act Day Virgin Is.	<i>the</i>	
23 Tu.		♁ Stat. in R.A. • ♁at♁ • { 11.1 9.9	<i>coasts</i>	
24 W.		John the Baptist B. • Flying saucer craze began 1947	<i>will</i>	
25 Th.		Delmarva Chick. Fest. ♁ Eq. Tides { 10.3 10.0	<i>rake.</i>	
26 Fr.		U. N. Charter Atl. City Board- sqd. 1945 walk compl. 1870	<i>O.K.</i>	
27 Sa.		Mississippi bubble burst 1870 Tides { 9.8 10.1	<i>Now go</i>	
28 D		6tha. ♀. World War I began 1914 { 8.9 10.2	<i>play</i>	
29 M.		Peter & Paul • ☿♁ Tides { 8.7 10.2	<i>in the</i>	
30 Tu.		Biondin tight roped Niagara Falls 1859 Tides { 8.6 10.2	<i>hay.</i>	

He who happens to hit once
will be forever after shooting

1970]

JULY, SEVENTH MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /
	1	23	N.07	7	22 35	13	21 49	19	20 50	25	19 39	
2	23	02	8	22 29	14	21 40	20	20 39	26	19 26		
3	22	58	9	22 22	15	21 31	21	20 28	27	19 12		
4	22	53	10	22 14	16	21 21	22	20 16	28	18 59		
5	22	47	11	22 07	17	21 11	23	20 04	29	18 45		
6	22	42	12	21 58	18	21 01	24	19 52	30	18 30		

- New Moon, 3rd day, 10 h. 18 m., morning, E.
 ☽ First Quarter, 11th day, 2 h. 43 m., evening, E.
 ○ Full Moon, 18th day, 2 h. 59 m., evening, E.
 ☾ Last Quarter, 25th day, 6 h. 00 m., morning, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	☉ Key	☉ Sets h. m.	☉ Key	Length of Days h. m.	Sun Fast	Full Sea, Boston. Morn h. Eve. h.	☽ Rises h. m.	☽ Key	☽ Sets h. m.	☽ Key	Place	Age
182	1	W.	4 10	c	7 26	o	15 16	12	9 $\frac{1}{2}$	9 $\frac{1}{2}$	1 ^A _M 56	B	6 ^P _M 19	Q	G'M 29
183	2	Th.	4 11	c	7 25	o	15 15	12	10 $\frac{1}{4}$	10 $\frac{1}{2}$	2 46	A	7 12	Q	G'M 30
184	3	Fr.	4 11	c	7 25	o	15 14	12	11	11 $\frac{1}{4}$	3 44	B	7 56	P	CNC 0
185	4	Sa.	4 12	c	7 25	o	15 13	11	11 $\frac{3}{4}$	—	4 46	B	8 31	O	CNC 1
186	5	D	4 12	c	7 25	o	15 12	11	0	0 $\frac{1}{2}$	5 51	D	8 59	N	LEO 2
187	6	M.	4 13	c	7 24	o	15 11	11	0 $\frac{1}{2}$	1	6 55	E	9 23	L	LEO 3
188	7	Tu.	4 14	c	7 24	o	15 10	11	1 $\frac{3}{4}$	1 $\frac{3}{4}$	7 58	F	9 43	K	LEO 4
189	8	W.	4 14	c	7 24	o	15 09	11	2	2 $\frac{1}{2}$	9 00	G	10 02	J	VIR 5
190	9	Th.	4 15	c	7 23	o	15 08	11	2 $\frac{1}{2}$	3	10 01	I	10 19	I	VIR 6
191	10	Fr.	4 16	c	7 23	o	15 07	10	3 $\frac{1}{2}$	3 $\frac{3}{4}$	11 ^A _M 03	J	10 38	G	LIB 7
192	11	Sa.	4 17	c	7 23	N	15 06	10	4	4 $\frac{1}{2}$	12 ^P _M 06	K	10 58	F	LIB 8
193	12	D	4 17	d	7 22	N	15 05	10	5	5 $\frac{1}{2}$	1 13	M	11 22	E	SCO 9
194	13	M.	4 18	d	7 21	N	15 03	10	6	6 $\frac{1}{4}$	2 23	N	11 ^P _M 51	D	SCO 10
195	14	Tu.	4 19	d	7 21	N	15 02	10	6 $\frac{3}{4}$	7	3 36	O	—	—	SGR 11
196	15	W.	4 20	d	7 20	N	15 00	10	7 $\frac{3}{4}$	8	4 48	P	12 ^A _M 29	B	SGR 12
197	16	Th.	4 21	d	7 19	N	14 59	10	8 $\frac{3}{4}$	9	5 55	P	1 19	B	SGR 13
198	17	Fr.	4 21	d	7 19	N	14 57	10	9 $\frac{1}{2}$	9 $\frac{3}{4}$	6 52	P	2 23	B	CAP 15
199	18	Sa.	4 22	d	7 18	N	14 56	10	10 $\frac{1}{2}$	10 $\frac{3}{4}$	7 38	O	3 39	C	CAP 16
200	19	D	4 23	d	7 17	N	14 54	10	11 $\frac{1}{2}$	11 $\frac{1}{2}$	8 14	M	5 01	D	—
201	20	M.	4 24	d	7 17	N	14 53	9	—	0 $\frac{1}{4}$	8 43	L	6 25	E	AQR 17
202	21	Tu.	4 25	d	7 16	N	14 51	9	0 $\frac{1}{2}$	1	9 08	J	7 46	G	AQR 18
203	22	W.	4 26	d	7 15	N	14 49	9	1 $\frac{1}{2}$	2	9 31	I	9 04	I	PSC 19
204	23	Th.	4 27	d	7 14	N	14 47	9	2 $\frac{1}{4}$	2 $\frac{3}{4}$	9 53	G	10 20	J	PSC 20
205	24	Fr.	4 28	d	7 13	N	14 45	9	3 $\frac{1}{4}$	3 $\frac{3}{4}$	10 17	F	11 ^A _M 35	L	ARI 21
206	25	Sa.	4 29	d	7 12	N	14 43	9	4 $\frac{1}{4}$	4 $\frac{1}{2}$	10 44	D	12 ^P _M 48	M	ARI 22
207	26	D	4 30	d	7 11	N	14 41	9	5 $\frac{1}{4}$	5 $\frac{1}{2}$	11 16	C	2 00	O	TAU 23
208	27	M.	4 31	d	7 10	N	14 39	9	6 $\frac{1}{4}$	6 $\frac{1}{2}$	11 ^P _M 55	B	3 10	P	TAU 24
209	28	Tu.	4 32	e	7 09	M	14 37	9	7 $\frac{1}{4}$	7 $\frac{1}{2}$	—	—	4 13	Q	G'M 25
210	29	W.	4 33	e	7 08	M	14 35	9	8 $\frac{1}{4}$	8 $\frac{1}{2}$	12 ^A _M 42	A	5 09	Q	G'M 26
211	30	Th.	4 34	e	7 07	M	14 33	9	9 $\frac{1}{4}$	9 $\frac{1}{2}$	1 36	A	5 55	P	CNC 27
212	31	Fr.	4 35	e	7 05	M	14 31	9	10	11	2 ^A _M 37	B	6 ^P _M 33	O	CNC 28

JULY hath 31 days.

[1970



The clover bloom sheds no perfume;
No longer laugh the crystal streams;
On mossy beds the roses' head
Have calmly dropped in quiet dreams.

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.	
1	W.	Blood of Christ	Dominion Day {8.5 10.2	Floods	<p>Father planned our family vacation to as remote a spot as possible. Boston to Portland, Maine; local train to Megantic. Overnight at the Megantic House. Next day by lake steamer to our stop at the lake's end. Then by buckboard to camp.</p> <p>Megantic was a lumber mill town, heart of the great forests. Mountains of logs. Bays and rivers of logs. Oh, the wonderful smell of them! And the loggers—strange as Martians.</p> <p>Next morning we boarded the little wood burning paddle steamer. Father visited "Capn Marsh" in the wheel house. Then in a Vesuvius of sparks and smoke we were off. "Queek, queek" the whistle—"garumph, garumph" the paddles. At each stop was the business of cargo—a sheep, a cow, boxes and cartons, for the steamer was the life line of the little towns.</p> <p>The last stop and the buckboard. Father, duster and dust glasses in front with the driver; mother and we boys in back. Sun and dust. Perilous ascents, brake screeching descents. With each hour the overripe side of lamb got overriper.</p> <p>Finally, the lake. The great, grey camp house and father's faithful guide Howard. "The good Lord be thanked," said Mother, making for the kitchen to busk Josephine and her daughter.</p> <p>We were ready to settle in.</p>
2	Th.	Visitation of Mary	☾ runs high {8.6 10.2	disastrous	
3	Fr.	Corn should be knee high by the Fourth of July	☾ {8.6 10.1	hit	
4	Sa.	Independence Day	☾ {8.6	Missouri	
5	D	6th a. ☾	Crescent Moon in West	& Kansas.	
6	M.	♂♀ ☾ Sup.	[7th Frances] Cobrinol	Hotter'n	
7	Tu.	♂♀ ☾ ☾	☾ in Apo. • ☾ at ☽	{9.7 8.7} hades	
8	W.	Liberty Bell cracked tolling for Ch. J. Marshall 1835		but great	
9	Th.	☾ on Eq. founded—1865	Salivation Army Tides	{9.1 8.7} for	
10	Fr.	♂♂ ☾ Hughes rounded world 1938 (91 hrs)		tanning	
11	Sa.	Congress passed U.S. (12th) Tax Law (16th Amend.) 1909		{8.5 8.9} the	
12	D	8th a. ☽. ☽ ☽ ☾		{9.2 9.0} ladies.	
13	M.	Brigham Young had 15 wives 1859	Hol. Tenn.	Rain	
14	Tu.	Bastille Day	☽ ☽ ☾ Tides	{8.0 9.5} & hail-	
15	W.	St. Swithin	Bandalsan expl. 1888	{8.2 10.0} stones	
16	Th.	☾ rides low	Wash., D.C. bec. Captal U.S. 1790	large	
17	Fr.	All are not holy who lift their hands to heaven	Tides	{8.8 10.9} as	
18	Sa.	The Full Buck Moon	St. Lawrence Sea-way Treaty 1932	pine	
19	D	8th a. ☾	☾ in Peri. High Tide	High P.M. cones.	
20	M.	St. Marg. 21st	☾ High A.M. High Tide	Everywhere	
21	Tu.	Daniel Prophet • Tammuz	☾ at ☽	{11.6 10.4} in	
22	W.	M. Magdalene	☾ on Eq.	Tides {11.3 10.6} the	
23	Th.	Lake Superior iron ranges disc. 1845	Tides	{10.9 10.6} nation	
24	Fr.	Salt Lake City founded 1847	Hol. Utah	{10.2 10.5} these	
25	Sa.	St. James	Dog Days begin	Andrea Doria sunk—1956 days	
26	D	10th a. ☽. St. Anne	☽ ☾	are the	
27	M.	Seven Sleepers	St. Armlstice signed Korean War—1953	very	
28	Tu.	All whom you see dance are not all that merry	Tides	{8.2 9.7} best	
29	W.	☾ runs high	Both sun & moon blood red 1566	{8.1 9.7} for	
30	Th.	Pony Panning Day Assateague, Va.		your vacation.	
31	Fr.	Submarines Skate & Seadragon met under No. Pole 1962		{8.3 9.8}	

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AUGUST, EIGHTH MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /
	1	18	N.00	7	16 24	13	14 39	19	12 46	25
2	17	45	8	16 07	14	14 21	20	12 26	26	10 24
3	17	29	9	15 50	15	14 02	21	12 06	27	10 03
4	17	13	10	15 33	16	13 43	22	11 46	28	9 42
5	16	57	11	15 15	17	13 24	23	11 26	29	9 21
6	16	41	12	14 57	18	13 05	24	11 06	30	8 59

- New Moon, 2nd day, 12 h. 58 m., morning, E.
- ☽ First Quarter, 10th day, 3 h. 50 m., morning, W.
- Full Moon, 16th day, 10 h. 15 m., evening, E.
- ☾ Last Quarter, 23rd day, 3 h. 34 m., evening, W.
- New Moon, 31st day, 5 h. 01 m., evening, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS—PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☽ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea. Boston. Morn Eve h. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	Place	Age	
213	1	Sa.	4 36	E	7 04	M	14 29	10	10 $\frac{3}{4}$	10 $\frac{3}{4}$	3 ^A _M 41	C	7 ^P _M 03	N	LEO	29
214	2	D	4 37	E	7 03	M	14 26	10	11 $\frac{1}{2}$	11 $\frac{1}{2}$	4 46	D	7 27	M	LEO	0
215	3	M.	4 38	E	7 02	M	14 24	10	—	0	5 49	F	7 49	L	LEO	1
216	4	Tu.	4 39	E	7 00	M	14 22	10	0	0 $\frac{1}{2}$	6 51	G	8 07	J	VIR	3
217	5	W.	4 40	E	6 59	M	14 19	10	0 $\frac{3}{4}$	1 $\frac{1}{4}$	7 53	H	8 25	I	VIR	4
218	6	Th.	4 41	E	6 58	M	14 17	10	1 $\frac{1}{2}$	1 $\frac{3}{4}$	8 54	I	8 43	H	LIB	5
219	7	Fr.	4 42	E	6 56	M	14 15	10	2	2 $\frac{1}{2}$	9 56	K	9 02	G	LIB	6
220	8	Sa.	4 43	E	6 55	M	14 12	10	2 $\frac{3}{4}$	3	11 ^A _M 01	L	9 24	E	SCO	7
221	9	D	4 44	E	6 54	M	14 10	10	3 $\frac{1}{2}$	4	12 ^P _M 08	M	9 50	D	SCO	8
222	10	M.	4 45	E	6 52	M	14 07	11	4 $\frac{1}{2}$	4 $\frac{3}{4}$	1 17	O	10 23	C	SCO	9
223	11	Tu.	4 46	F	6 51	L	14 05	11	5 $\frac{1}{4}$	5 $\frac{1}{2}$	2 28	P	11 ^P _M 06	B	SGR	10
224	12	W.	4 47	F	6 50	L	14 03	11	6 $\frac{1}{4}$	6 $\frac{1}{2}$	3 36	P	—	—	SGR	11
225	13	Th.	4 48	F	6 48	L	14 00	11	7 $\frac{1}{4}$	7 $\frac{1}{2}$	4 37	P	12 ^A _M 02	A	CAP	12
226	14	Fr.	4 49	F	6 47	L	13 58	11	8 $\frac{1}{4}$	8 $\frac{1}{2}$	5 28	O	1 11	B	CAP	13
227	15	Sa.	4 50	F	6 46	L	13 56	11	9 $\frac{1}{4}$	9 $\frac{1}{2}$	6 08	N	2 29	C	AQR	14
228	16	D	4 51	F	6 44	L	13 53	12	10	10 $\frac{1}{2}$	6 40	M	3 53	D	AQR	15
229	17	M.	4 52	F	6 43	L	13 51	12	11	11 $\frac{1}{4}$	7 07	K	5 17	F	—	—
230	18	Tu.	4 53	F	6 42	L	13 48	12	11 $\frac{3}{4}$	—	7 32	I	6 39	H	PSC	16
231	19	W.	4 54	F	6 40	L	13 46	12	0 $\frac{1}{4}$	0 $\frac{3}{4}$	7 55	II	7 58	I	PSC	17
232	20	Th.	4 55	F	6 39	L	13 43	13	1	1 $\frac{1}{2}$	8 19	F	9 16	K	ARI	18
233	21	Fr.	4 56	F	6 37	L	13 41	13	2	2 $\frac{1}{4}$	8 46	E	10 32	M	ARI	19
234	22	Sa.	4 58	F	6 36	L	13 38	13	2 $\frac{3}{4}$	3 $\frac{1}{4}$	9 17	C	11 ^A _M 47	N	TAU	20
235	23	D	4 59	F	6 34	K	13 35	13	3 $\frac{3}{4}$	4	9 53	B	1 ^P _M 00	P	TAU	21
236	24	M.	5 00	G	6 32	K	13 33	14	4 $\frac{3}{4}$	5	10 38	A	2 07	P	G'M	22
237	25	Tu.	5 01	G	6 31	K	13 30	14	5 $\frac{3}{4}$	6 $\frac{1}{4}$	11 ^P _M 31	A	3 05	Q	G'M	23
238	26	W.	5 02	G	6 29	K	13 27	14	7	7 $\frac{1}{4}$	—	—	4 54	P	G'M	24
239	27	Th.	5 03	G	6 28	K	13 25	14	8	8 $\frac{1}{4}$	12 ^A _M 30	B	4 35	P	CNC	25
240	28	Fr.	5 04	G	6 26	K	13 22	15	8 $\frac{3}{4}$	9	1 33	C	5 07	N	CNC	26
241	29	Sa.	5 05	G	6 24	K	13 19	15	9 $\frac{1}{2}$	9 $\frac{3}{4}$	2 37	D	5 33	M	LEO	27
242	30	D	5 06	G	6 23	K	13 16	15	10 $\frac{1}{4}$	10 $\frac{1}{2}$	3 41	E	5 55	L	LEO	28
243	31	M.	5 07	G	6 21	K	13 14	16	11	11	4 ^A _M 44	G	6 ^P _M 14	K	VIR	29



Languid and still are vale and hill,
And Nature's face is growing sear;
The lurid haze of summer days
Is hung across the atmosphere.

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	Sa.	Lammas D. So. Am. cont. disc. 1498	\$8.5 \$9.9	<i>Too</i>
2	D	10th a. T. ☽ ☽ ☽	\$8.6 \$9.9	<i>humid</i>
3	M.	☾ in Apo. • All covet • Hol. all lose • Col.	\$8.8	<i>says</i>
4	Tu.	Cat 8 • ☽ ☽ Gomorrah & Sodom		<i>cupid.</i>
5	W.	☾ on Hiroshima 1945	\$9.7 \$9.0	<i>Hear the</i>
6	Th.	TRANSIG. ☽ ☽ • ☽ ☽		<i>wonder</i>
7	Fr.	Name of Jesus First U.S. clrc. library 1795		<i>of God's</i>
8	Sa.	☽ ☽ ☽ Mail coaches 1st ran 1784	\$8.8 \$9.1	<i>thunder.</i>
9	D	12th a. P. Francis Scott Key b. 1780	\$8.5 \$9.1	<i>This</i>
10	M.	The Tears of St. Lawrence 9-14	Stat. in R.A.	<i>storm, 'tis</i>
11	Tu.	Fest of Av. ☽ ☽ ☽	Rec. rain Chl. 1923	<i>true is in</i>
12	W.	[14 First book printed th at Mentz, 1442	\$7.9 \$9.6	<i>line</i>
13	Th.	☾ low rides Reading, Mass. tornado 1857	\$8.1 \$10.0	<i>with</i>
14	Fr.	☽ ☽ [16 Battle of th Bennington, Vt.]	Hol. Ark.	<i>Lat.</i>
15	Sa.	Assump. V. M. [16 th ☽ Partial ☽ Gr. El. ☽ Eclipse W.]	\$4.2	
16	D	12th a. T. The Full Star-geon Moon	\$9.7 \$11.4	<i>Dry</i>
17	M.	Cat 8 • ☽ in Perl. High P.M.	\$10.8	<i>in</i>
18	Tu.	"To die for liberty is a pleasure" Bozzaris 1823	\$10.8	<i>South,</i>
19	W.	☾ on Severe tornado Eq. Maine, 1852	High A.M. High Tide	<i>Far</i>
20	Th.	Austrian Emp. Francis Joseph abol. the gauntlet 1854		<i>West</i>
21	Fr.	Destroy bushes and sprouts	\$10.7 \$11.0	<i>has a drought.</i>
22	Sa.	Sacco & Vanzetti should not have been executed (23rd) 1927	\$10.0 \$10.6	
23	D	14th a. P. ☽ ☽ ☽		<i>Life may be</i>
24	M.	Early frost mean. a cold winter thru 29th, 1945	Texas Hurr. 1945	<i>slow</i>
25	Tu.	☾ runs Jerusalem High Wall rebuilt	\$8.1 \$9.4	<i>but</i>
26	W.	It takes a soft answer to break strong wrath	\$7.9 \$9.2	<i>where did</i>
27	Th.	Confucius born 551 B.C. • Voic. erupt. 1883	\$7.9 \$9.8	
28	Fr.	Saint Augustine • Calif. 1962		<i>this</i>
29	Sa.	John Baptist beheaded	Stat. in R.A. \$8.3 \$9.5	<i>summer</i>
30	D	15th a. T. ☽ ☽ ☽	St. Flacrus ☾ Apo.	<i>ever</i>
31	M.	Annular Eclipse Charleston, S.C. quake — see pg. 120		<i>go?</i>

To the world of nature, night is the time of feeding, prowling, searching, mating, and playing. Beavers gnaw poplar to proper lengths, repair their dams, flat tails repairing leaks. Bull frogs boom and snap at water bugs and beetles. The cautious old coon stalks the bull frog and his foolish cousins. Dipping and tipping the ducks and sheldrake feed on the wild race and succulent water plants and minnows. The mink and otter find their best fishing now—and the otter and his family, as never in the day, share the pure joy of their slick, glass-smooth slide.

Alone at his window the boy dreams of hornpout and a great grey pickerel.

In the farmer's orchard the porcupine gluts, and the deer more daintily, while the fox makes his business of mice in the orchard mulch. Wanton, blood-lusty, the weasel seeks the helpless rabbit; the bobcat, deadly stalker, forever hunting, feeds as he finds—mice, or bird, or helpless lamb. The skunk gouges the lawn for crickets and old mole burrows beneath.

In the forest the owl swoops to the little squeaks and rustles beneath; the flying squirrel glides his ghostly aisles; the barn bat dips the mosquitoey night.

Only the boy senses in the mysterious night creatures wandering in the lonely hills.

1970]

SEPTEMBER, NINTH MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.			Days.			Days.			Days.			Days.		
	0	/		0	/		0	/		0	/		0	/	
1	7	N.	16	7	6	03	13	3	47	19	1	29	25	0	53
2	7		54	8	5	40	14	3	24	20	1	06	26	1	16
3	7		32	9	5	18	15	3	01	21	0	42	27	1	40
4	7		10	10	4	55	16	2	38	22	0	N.18	28	2	04
5	6		48	11	4	32	17	2	15	23	0	s.06	29	2	28
6	6		26	12	4	10	18	1	51	24	0		30	2	52

☽ First Quarter, 8th day, 2 h. 38 m., evening, E.

☾ Full Moon, 15th day, 6 h. 10 m., morning, W.

☾ Last Quarter, 22nd day, 4 h. 42 m., morning, W.

● New Moon, 30th day, 9 h. 32 m., morning, E.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	☉ Key	☉ Sets h. m.	☉ Key	Length of Days h. m.	Sun Fast	Full Sea, Boston. Morn. h. Eve. h.	☽ Rises h. m.	☽ Key	☽ Sets h. m.	☽ Key	☽ Place	☽ Age
244	1	Tu.	5 08	G	6 20	K	13 12	16	11½	11¾	5 ^A _M 45	H	6 ^P _M 32	I	VIR 1
245	2	W.	5 09	G	6 18	K	13 09	16	—	0	6 47	I	6 50	H	VIR 2
246	3	Th.	5 10	G	6 17	K	13 06	17	0½	0½	7 49	K	7 08	G	LIB 3
247	4	Fr.	5 11	G	6 15	K	13 04	17	1	1¼	8 52	L	7 29	F	LIB 4
248	5	Sa.	5 12	H	6 13	J	13 01	17	1½	1¾	9 58	M	7 53	D	SCO 5
249	6	D	5 13	H	6 12	J	12 58	18	2¼	2½	11 ^A _M 06	N	8 23	C	SCO 6
250	7	M.	5 15	H	6 10	J	12 56	18	3	3¼	12 ^P _M 15	O	9 01	B	SGR 7
251	8	Tu.	5 16	H	6 08	J	12 53	18	4	4¼	1 23	P	9 50	B	SGR 8
252	9	W.	5 17	H	6 07	J	12 50	19	4¾	5	2 24	P	10 ^P _M 51	B	CAP 9
253	10	Th.	5 18	H	6 05	J	12 47	19	6	6¼	3 18	P	—	—	CAP 10
254	11	Fr.	5 19	H	6 03	J	12 44	19	7	7¼	4 01	O	12 ^A _M 03	C	AQR 11
255	12	Sa.	5 20	H	6 01	J	12 42	20	8	8¼	4 36	M	1 23	D	AQR 12
256	13	D	5 21	H	6 00	J	12 39	20	9	9¼	5 06	L	2 45	E	PSC 13
257	14	M.	5 22	H	5 58	J	12 36	20	9¾	10	5 31	J	4 07	G	PSC 14
258	15	Tu.	5 23	H	5 56	J	12 33	21	10½	11	5 55	I	5 28	I	—
259	16	W.	5 24	H	5 54	J	12 30	21	11½	—	6 19	G	6 48	J	ARI 15
260	17	Th.	5 25	I	5 52	I	12 27	21	0	0¼	6 45	E	8 06	K	ARI 16
261	18	Fr.	5 26	I	5 50	I	12 24	22	0¾	1	7 14	D	9 25	M	TAU 17
262	19	Sa.	5 27	I	5 49	I	12 21	22	1½	2	7 50	C	10 41	O	TAU 18
263	20	D	5 28	I	5 47	I	12 18	22	2½	2¾	8 33	B	11 ^A _M 53	P	TAU 19
264	21	M.	5 29	I	5 45	I	12 15	23	3¼	3½	9 24	A	12 ^P _M 57	Q	G'M 20
265	22	Tu.	5 30	I	5 43	I	12 13	23	4¼	4½	10 22	B	1 51	Q	G'M 22
266	23	W.	5 31	I	5 41	I	12 10	23	5¼	5½	11 ^P _M 24	B	2 34	P	CNC 23
267	24	Th.	5 33	I	5 39	I	12 07	24	6½	6¾	—	—	3 09	O	CNC 24
268	25	Fr.	5 34	I	5 37	I	12 04	24	7½	7¾	12 ^A _M 28	C	3 37	N	LEO 25
269	26	Sa.	5 35	I	5 36	I	12 01	24	8¼	8½	1 33	E	4 00	L	LEO 26
270	27	D	5 36	I	5 34	I	11 58	25	9	9¼	2 36	F	4 20	K	VIR 27
271	28	M.	5 37	I	5 32	I	11 55	25	9¾	10	3 38	G	4 39	J	VIR 28
272	29	Tu.	5 38	J	5 31	H	11 52	25	10¼	10½	4 39	I	4 57	I	VIR 29
273	30	W.	5 39	J	5 28	H	11 49	26	11	11¼	5 ^A _M 41	J	5 ^P _M 15	G	LIB 0



The forest, dressed with crimson crest,
 In pride and splendor seems to vie
 With golden gleams and ruby beams
 Upon the gorgeous sunset sky.

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
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1	Tu.	♀ Gr. El.	You will see the Crescent Moon in West (4th)	
2	W.	☾ on Eq.	New style Cal. 1752	Beautiful
3	Th.	♁ ☽ ☾	No need to burn the barn to kill the flies	clouds,
4	Fr.	Moses Patriarch	Stat. in R.A.	♁ ☽ ☾ No
5	Sa.	Dog Days end	♁ ☽ ☾	shrouds.
6	D	16th. ♀	Hay Fever peak (4th)	{ 8.8 9.4 } Get
7	M.	Labor Day	Great London Blitz beg. 1940	{ 8.5 9.3 } ready,
8	Tu.	Nativity of Mary	Atl. Coast Gale 1869	Hurr. 1900 get
9	W.	rides low	Separate ewes from lambs	Hol. Calif. { 8.0 19.3 } set,
10	Th.	Boston Common made 1634	Acadians left Nova Sc. 1755	it'll
11	Fr.	Hesiod's Lucky Day for reapers	Tides	{ 8.3 9.9 } be wet
12	Sa.	♁ ☽ ☽ Inf.	13th — John Barry father of Navy d.	and
13	D	16th. ☽ ☽ ☽	at ☽ in Md. hurricanes	
14	M.	Holy Cross	♁ ☽ ☽ in Peri.	down South
15	Tu.	The Full Harvest Moon	☾ on Eq.	{ 10.9 11.4 } we bet.
16	W.	The trees are changing color	Hol. Okla.	{ 11.4 } Cooler
17	Th.	Citizen-ship Day	End New Orleans Revolution 1874	{ 11.2 11.5 } air,
18	Fr.	Low banks soon overflow	• Night and day were created	days
19	Sa.	♁ ☽ ☽	• First. Art. Explosion 1891	Rain by are
20	D	18th. ♀	♁ ☽ ☽	Tides { 9.6 10.5 } fair.
21	M.	Saint Matthew	☾ runs high in R.A.	Stat. Tomatoes
22	Tu.	It is the second blow that makes the fray	Tides	{ 8.3 9.3 } now
23	W.	Fall Begins 5.59 A.M.	• Sun enters Libra	pick
24	Th.	John Baptist conceived	• Lowest A.M. High Tide	{ 7.8 18.8 } ere
25	Fr.	American Indian Day	• Balboa disc. Pacific 1513	{ 7.9 18.9 } frosts
26	Sa.	Night now equals day	• Tunney def. Dempsey 1926	make
27	D	18th. ♀	☽ ☽ ☽	in Apo. 'em
28	M.	♀ Gr. El. ♀ W.	• ☽ ☽ ☽ • ☽ ☽ ☽	{ 18.9 19.4 } sick.
29	Tu.	Michael, Archangel	☾ on Eq.	Tides { 9.2 9.5 } Relax,
30	W.	Saint Jerome	Adam & Eve banished	{ 9.5 9.5 } max.

Howard was of that fabulous breed—the Maine guide—lasonic, humorous, kind and wise and capable, but independent as a hog on ice. In the latter connection I often think of a deer hunting incident. In deer season other guides wore something red. Not Howard. He kept to his floppy old gray hat, derelict black sweater, and dark woodsman's pants. This day, hunting alone, he was making a fire for his noon tea. His brother chanced upon him unexpectedly, mistook what he saw, and raised his gun to fire before he recognized Howard.

"Damn it, I near shot you for a bear!" "Humph," grunted Howard. "Whoever seed a bear lighting a fire?"

And this—of my brother and me on our first camping trip with father and Howard. We were picking blackberries behind the cabin when suddenly the world exploded—a thunderous crashing, growls, a clatter of frantic hooves, then only yards away a huge bear chasing a cow moose. A splash in the lake. The moose had escaped.

Wide-eyed we sought Howard. He listened, lit his pipe, viewed us solemnly. "Boys," he said, "this is a meerculous thing, sure enough. No boys, I reckon, ever seed the like of this. Glory be—a moose with a bear behind. Go tell your Daddy."

A wild beast a man may tame, but a woman's tongue ne'er grows lame.

1970]

OCTOBER, TENTH MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.		0 /		Days.		0 /		Days.		0 /		Days.		0 /	
	1	3s. 16	7	5 36	13	7 48	19	10 00	25	12 07						
2	3	40	8	5 54	14	8 10	20	10 22	26	12 28						
3	4	03	9	6 17	15	8 32	21	10 43	27	12 48						
4	4	26	10	6 40	16	8 54	22	11 04	28	13 08						
5	4	50	11	7 03	17	9 16	23	11 25	29	13 28						
6	5	13	12	7 25	18	9 38	24	11 46	30	13 48						

☽ First Quarter, 7th day, 11 h. 43 m., evening, W.

☉ Full Moon, 14th day, 3 h. 21 m., evening, E.

☾ Last Quarter, 21st day, 9 h. 47 m., evening, E.

● New Moon, 30th day, 1 h. 28 m., morning, E.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉		☽		Length of Days	Sun F. ast	Full Sea. Boston.		☽		☽		☽	☽
			Rises h. m.	Key	Sets h. m.	Key			Morn h.	Eve. h.	Rises h. m.	Key	Sets h. m.	Key		
274	1	Th.	5 40	J	5 27	H	11 47	26	11 $\frac{1}{2}$	11 $\frac{3}{4}$	6 $\frac{A}{M}$ 44	K	5 $\frac{P}{M}$ 35	F	LIB	1
275	2	Fr.	5 41	J	5 25	H	11 44	27	—	0	7 50	M	5 58	E	SCO	2
276	3	Sa.	5 42	J	5 23	H	11 41	27	0 $\frac{1}{2}$	0 $\frac{1}{2}$	8 57	N	6 26	D	SCO	3
277	4	D	5 43	J	5 22	H	11 38	27	1	1 $\frac{1}{4}$	10 06	O	7 02	C	SGR	4
278	5	M.	5 45	J	5 20	H	11 35	27	1 $\frac{3}{4}$	2	11 $\frac{A}{M}$ 14	P	7 46	B	SGR	5
279	6	Tu.	5 46	J	5 18	H	11 33	28	2 $\frac{1}{2}$	2 $\frac{3}{4}$	12 $\frac{P}{M}$ 17	P	8 42	B	SGR	6
280	7	W.	5 47	J	5 17	H	11 30	28	3 $\frac{1}{2}$	3 $\frac{3}{4}$	1 12	P	9 49	B	CAP	7
281	8	Th.	5 48	J	5 15	H	11 27	28	4 $\frac{1}{2}$	4 $\frac{3}{4}$	1 57	O	11 $\frac{P}{M}$ 04	C	CAP	8
282	9	Fr.	5 49	J	5 13	H	11 24	29	5 $\frac{1}{2}$	6	2 34	N	—	—	AQR	9
283	10	Sa.	5 50	K	5 12	G	11 22	29	6 $\frac{1}{2}$	7	3 04	L	12 $\frac{A}{M}$ 22	E	AQR	10
284	11	D	5 51	K	5 10	G	11 19	29	7 $\frac{1}{2}$	8	3 30	K	1 41	F	PSC	11
285	12	M.	5 53	K	5 09	G	11 16	29	8 $\frac{1}{2}$	9	3 54	I	3 00	H	PSC	13
286	13	Tu.	5 54	K	5 07	G	11 13	30	9 $\frac{1}{2}$	9 $\frac{3}{4}$	4 18	H	4 19	I	ARI	14
287	14	W.	5 55	K	5 05	G	11 11	30	10 $\frac{1}{4}$	10 $\frac{3}{4}$	4 43	F	5 37	K	ARI	15
288	15	Th.	5 56	K	5 04	G	11 08	30	11	11 $\frac{1}{2}$	5 11	E	6 57	M	—	—
289	16	Fr.	5 57	K	5 02	G	11 05	30	11 $\frac{3}{4}$	—	5 44	C	8 15	N	TAU	16
290	17	Sa.	5 58	K	5 01	G	11 02	30	0 $\frac{1}{2}$	0 $\frac{1}{2}$	6 25	B	9 31	P	TAU	17
291	18	D	6 00	K	4 59	G	11 00	31	1 $\frac{1}{4}$	1 $\frac{1}{2}$	7 13	A	10 40	P	G'M	18
292	19	M.	6 01	K	4 57	G	10 57	31	2	2 $\frac{1}{4}$	8 10	A	11 $\frac{A}{M}$ 40	Q	G'M	19
293	20	Tu.	6 02	K	4 56	G	10 54	31	3	3	9 12	B	12 $\frac{P}{M}$ 29	P	CNC	20
294	21	W.	6 03	K	4 54	G	10 51	31	3 $\frac{3}{4}$	4	10 17	C	1 07	O	CNC	21
295	22	Th.	6 04	L	4 53	F	10 49	31	4 $\frac{3}{4}$	5	11 $\frac{P}{M}$ 22	D	1 38	N	CNC	22
296	23	Fr.	6 06	L	4 51	F	10 46	31	5 $\frac{3}{4}$	6	—	—	2 03	M	LEO	23
297	24	Sa.	6 07	L	4 50	F	10 43	32	6 $\frac{3}{4}$	7	12 $\frac{A}{M}$ 25	F	2 25	L	LEO	24
298	25	D	6 08	L	4 48	F	10 40	32	7 $\frac{1}{2}$	8	1 27	G	2 44	J	VIR	25
299	26	M.	6 09	L	4 47	F	10 38	32	8 $\frac{1}{4}$	8 $\frac{1}{2}$	2 29	H	3 02	I	VIR	26
300	27	Tu.	6 10	L	4 45	F	10 35	32	9	9 $\frac{1}{2}$	3 30	I	3 21	H	LIB	27
301	28	W.	6 12	L	4 44	F	10 32	32	9 $\frac{1}{2}$	10	4 33	K	3 40	G	LIB	28
302	29	Th.	6 13	L	4 43	F	10 30	32	10 $\frac{1}{4}$	10 $\frac{3}{4}$	5 39	L	4 03	E	LIB	29
303	30	Fr.	6 14	L	4 41	F	10 27	32	11	11 $\frac{1}{4}$	6 46	M	4 29	D	SCO	0
304	31	Sa.	6 15	L	4 40	F	10 25	32	11 $\frac{1}{2}$	—	7 $\frac{A}{M}$ 56	N	5 $\frac{P}{M}$ 03	C	SCO	1

OCTOBER hath 31 days.

[1970



How quiet, through the hazy autumn air,
The elm-boughs wave with many a gold-flecked leaf!
How calmly float the dreamy-mantled clouds
Through these still days of Autumn, fair and brief!

MRS. STOWE

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	Th.	Rosh Hashanah • The Jewish New Year	Fine, we	
2	Fr.	♁ ☉ Freeze ferns for Christmas bouquets	boast	
3	Sa.	♁ ♀ ♀ Prune or plant forest trees	except	
4	D	20th a. ♀. Fast of Gedalla • ♂ ♀ ♀ on the		
5	M.	Bear with those who bear with you Tides { 8.7 9.7	west	At the turn of the century our town was the heart of a farming region. The dollars that flowed into our banks were farm dollars—dollars of milk and wool, wood and apples, cows and sheep and pigs. The woolen mills, the bobbin mill, the lumber yard, the cider and vinegar works, the basket shop were natural to our economy. There was active value in our lands—tillage, pasture, orchards, timber.
6	Tu.	♁ Greatest Brilliance • ♀ rides Christ, Peter & Paul, defeat Turks, LePanto, 1571 Tides { 8.5 9.6	coast.	
7	W.	Turks, LePanto, 1571 Chicago Fire, 250 d. 17000	Let's walk	
8	Th.	Chicago Fire, 250 d. 17000 bldgs. dest. 1871 - Denis • Lief • Storm 1804	to a	
9	Fr.	Abraham • Erickson • 1804		
10	Sa.	[11] ♁ Cat ♂ Yom Kippur Okla. { 8.7 9.3	rock,	
11	D	20th a. ♀. Mission Sunday { 9.3 10.2	then sit	
12	M.	Columbus D. ♁ in Peril. ♁ on Eq. and talk.		
13	Tu.	♁ ♀ ♀ The White House and this Almanac beg. 1792	Pow, it	
14	W.	The Full Hunter's Moon Poetry Tabernacles	blows &	
15	Th.	Day First Day High Tides	rains	
16	Fr.	Gaius If dry, so will Day be the Spring	& how.	
17	Sa.	Bike record 3 miles, 6 min., 43 sec. 1893 { 10.2 11.3	Best of	
18	D	22nd a. ♀. Luke, Hol. Evan. Alas. the year,		
19	M.	♁ runs • Weather robbed Ger- chigh • many air supremacy	1917 cool,	
20	Tu.	♀ Stat. Geese fly Storm in R.A. South 1870	sunny,	
21	W.	U.S. Frigate Constitution { 8.2 9.1	full of	
22	Th.	launched, Boston, 1797 Tabernacles [23 Rejoicing Eighth Day [rd of the Law]	cheer.	
23	Fr.	[24] ♁ in Apo. ♁ at ♂ { 7.8 8.6	No matter,	
24	Sa.	DAYLIGHT SAVING ENDS TOMORROW • U.N. Day	just a	
25	D	22nd a. ♀. Set clocks back one full hour	spitter-spatter.	
26	M.	♁ on Eq. No brook is too little to seek the sea		
27	Tu.	♁ ♀ Sup. • ♂ ♀ ♀ { 9.1 8.9	Here's a	
28	W.	Simon & Jude ♂ ♀ ♀ { 9.5 9.0	change of	
29	Th.	The devil tolled N.H. Church Bell 1727	tune with	
30	Fr.	Crescent Moon Noah started to in West (Oct. 3) all his ark	the	
31	Sa.	Halloween ♁ ♀ ♀ • Hol. Nev. new moon.		

1970] NOVEMBER, ELEVENTH MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /
	1	14s. 27		7	16 18	13	17 59	19	19 28	25
2	14. 46		8	16 35	14	18 14	20	19 42	26	20 57
3	15 05		9	16 53	15	18 29	21	19 56	27	21 08
4	15 23		10	17 10	16	18 44	22	20 09	28	21 19
5	15 42		11	17 26	17	19 00	23	20 21	29	21 29
6	16 00		12	17 43	18	19 14	24	20 33	30	21 39

☽ First Quarter, 6th day, 7 h. 47 m., morning, E.

☾ Full Moon, 13th day, 2 h. 28 m., morning, W.

☾ Last Quarter, 20th day, 6 h. 13 m., evening, E.

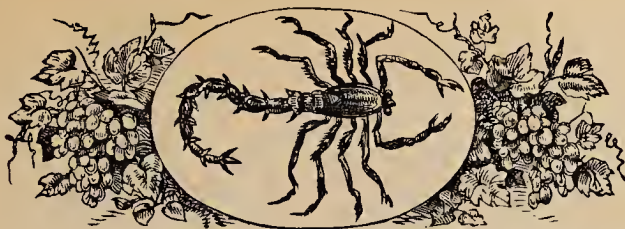
● New Moon, 28th day, 4 h. 14 m., evening, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	☉ Key	☉ Sets h. m.	☉ Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston.		☽ Rises h. m.	☽ Key	☽ Sets h. m.	☽ Key	☽	
									Morn h.	Eve. h.					Place	Age
305	1	D	6 17	L	4 39	F	10 22	32	0	0 $\frac{1}{4}$	9 $\frac{A}{M}$ 05	P	5 $\frac{P}{M}$ 45	B	SGR	2
306	2	M.	6 18	L	4 37	F	10 19	32	0 $\frac{3}{4}$	1	10 10	P	6 36	B	SGR	4
307	3	Tu.	6 19	L	4 36	E	10 17	32	1 $\frac{1}{2}$	1 $\frac{3}{4}$	11 08	P	7 42	B	CAP	5
308	4	W.	6 20	M	4 35	E	10 15	32	2 $\frac{1}{4}$	2 $\frac{1}{2}$	11 $\frac{A}{M}$ 56	O	8 54	C	CAP	6
309	5	Th.	6 22	M	4 34	E	10 12	32	3 $\frac{1}{4}$	3 $\frac{1}{2}$	12 $\frac{P}{M}$ 34	N	10 10	D	AQR	7
310	6	Fr.	6 23	M	4 33	E	10 10	32	4 $\frac{1}{4}$	4 $\frac{1}{2}$	1 06	M	11 $\frac{P}{M}$ 27	F	AQR	8
311	7	Sa.	6 24	M	4 31	E	10 07	32	5 $\frac{1}{4}$	5 $\frac{1}{2}$	1 32	L	—	—	PSC	9
312	8	D	6 25	M	4 30	E	10 05	32	6 $\frac{1}{4}$	6 $\frac{3}{4}$	1 56	J	12 $\frac{A}{M}$ 43	G	PSC	10
313	9	M.	6 27	M	4 29	E	10 02	32	7 $\frac{1}{4}$	7 $\frac{3}{4}$	2 19	I	1 58	I	ARI	11
314	10	Tu.	6 28	M	4 28	E	10 00	32	8 $\frac{1}{4}$	8 $\frac{1}{2}$	2 43	G	3 14	K	ARI	12
315	11	W.	6 29	M	4 27	E	9 58	32	9	9 $\frac{1}{2}$	3 08	F	4 30	L	TAU	13
316	12	Th.	6 30	M	4 26	E	9 56	32	10	10 $\frac{1}{2}$	3 39	D	5 49	M	TAU	14
317	13	Fr.	6 32	M	4 25	E	9 53	31	10 $\frac{3}{4}$	11 $\frac{1}{4}$	4 16	C	7 05	O	—	—
318	14	Sa.	6 33	M	4 24	E	9 51	31	11 $\frac{1}{2}$	—	5 01	B	8 19	P	G'M	15
319	15	D	6 34	M	4 23	E	9 49	31	0	0 $\frac{1}{4}$	5 55	A	9 24	Q	G'M	16
320	16	M.	6 35	M	4 22	E	9 47	31	0 $\frac{3}{4}$	1	6 57	B	10 19	P	CNC	17
321	17	Tu.	6 37	M	4 22	D	9 45	31	1 $\frac{1}{2}$	1 $\frac{3}{4}$	8 02	C	11 02	P	CNC	18
322	18	W.	6 38	N	4 21	D	9 43	30	2 $\frac{1}{2}$	2 $\frac{1}{2}$	9 08	D	11 $\frac{A}{M}$ 37	N	CNC	19
323	19	Th.	6 39	N	4 20	D	9 41	30	3 $\frac{1}{4}$	3 $\frac{1}{2}$	10 12	E	12 $\frac{P}{M}$ 04	M	LEO	20
324	20	Fr.	6 40	N	4 19	D	9 39	30	4 $\frac{1}{4}$	4 $\frac{1}{2}$	11 $\frac{P}{M}$ 15	G	12 27	L	LEO	21
325	21	Sa.	6 42	N	4 19	D	9 37	30	5	5 $\frac{1}{4}$	—	—	12 47	K	VIR	22
326	22	D	6 43	N	4 18	D	9 35	29	6	6 $\frac{1}{4}$	12 $\frac{A}{M}$ 17	H	1 06	J	VIR	23
327	23	M.	6 44	N	4 17	D	9 33	29	6 $\frac{3}{4}$	7	1 18	I	1 24	I	LIB	24
328	24	Tu.	6 45	N	4 17	D	9 31	29	7 $\frac{1}{2}$	8	2 20	J	1 43	G	LIB	25
329	25	W.	6 46	N	4 16	D	9 30	29	8 $\frac{1}{4}$	8 $\frac{3}{4}$	3 24	L	2 05	F	LIB	26
330	26	Th.	6 47	N	4 16	D	9 28	28	9	9 $\frac{1}{2}$	4 31	M	2 30	E	SCO	27
331	27	Fr.	6 49	N	4 15	D	9 26	28	9 $\frac{1}{2}$	10 $\frac{1}{4}$	5 40	N	3 01	C	SCO	28
332	28	Sa.	6 50	N	4 15	D	9 25	28	10 $\frac{1}{2}$	11	6 50	O	3 40	B	SGR	29
333	29	D	6 51	N	4 14	D	9 23	27	11	11 $\frac{3}{4}$	7 59	P	4 30	B	SGR	1
334	30	M.	6 52	N	4 14	D	9 22	27	11 $\frac{3}{4}$	—	9 $\frac{A}{M}$ 00	P	5 $\frac{P}{M}$ 32	B	CAP	2

NOVEMBER hath 30 days.

[1970



The Frost Spirit comes to our happy homes,
And chases the out-door flowers away,
Let us keep our hearts warm, and no outward storm
Will sadden us in November's day.

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	D	24th a. H . All Saints	$\delta\psi\text{C}$ Hol. La.	<p>Tonight our talk flowed at random on cities—little and great—everywhere. Betsy said all cities had their own smells. John suggested Los Angeles be leveled and recreated in 4000 foot skyscrapers to let the sun in; Hank, that on all maps Chicago be snipped out and burned for the liberation forever of travelers.</p> <p>And my observations: of New Orleans—something too long in the hot sun—a compote of rum, Creoles, Jazz (the true heart of it), balconies, salads, and shrimps (even the water). A great river locked in its levees—only the city flowing.</p> <p>Then, of three little "city towns" in New York, Vermont, New Hampshire (I shall not name them), alike as peas in a pod, gentle as mill ponds. Churches, elms, porches strung like beads along Main Street. Towns to retire to—in a wheelchair.</p> <p>And of Boston. Cultured, gregarious, cushioned with "family" and symphony. Englishmen forever take Bostonians for Englishmen. And correctly—were it not for a tea party. The "right" people were not asked. And of San Francisco—proud of its bridges, light and hill and bay.</p> <p>And last—of Prague. A memory. Far away and long ago. Sunday morning, church bells. Ours the only footsteps down the gentle slope to Wencezlas Square. Very, very long ago. Haunting as Camelot.</p>
2	M.	All Souls • C low	C Daniel Boone born 1734	
3	Tu.	Drake encircled the world 1580	Will Rogers b. (4th) 1879	
4	W.	Eugene Field died 1895	Hol. Okla. go away don't	
5	Th.	Powder plot's not forgot	Gulliver arr. at Lilliput 1699	
6	Fr.	Noah born B.C. 2948	$\delta\delta\text{C}$ Tides {8.5	
7	Sa.	C Antarctic seals bearing young	Tides {8.6 {9.5	
8	D	24th a. C . 51 days N.Y.-Hong Kong 1850 (record)	May.	
9	M.	$\delta\psi\text{C}$ in Peri. C on Eq.	Hazy and	
10	Tu.	Mohamet born 570	$\delta\psi\text{C}$ Inf. {10.4 {9.9	
11	W.	St. Martin's Veterans' Day	$\delta\text{h}\text{C}$ cloud	
12	Th.	When the candles are out all cats are gray	{11.2 {9.9 like a	
13	Fr.	The Full Beaver Moon	Indian Summer (13-20) $\delta\text{h}\text{C}$	
14	Sa.	Sadle Hawkins [15 Methuselah th born B.C. 2349]	pillow,	
15	D	26th a. H . C runs high	{9.5 {10.9 extremely	
16	M.	"Where a whale can go I can follow" Cap'n Palmer 1820	mellow.	
17	Tu.	Waves tremendous roared and billows rolled 1798	Hallelujah	
18	W.	Alewives ret. to the sea	St. Peter's ded. 1626 {8.5 {9.5 that	
19	Th.	The Pilgrims first sight of land 1620	Tides {8.2 {9.0 one	
20	Fr.	C at Cape Good Hope	1st doubled 1832 {8.0 {8.6 sure	
21	Sa.	Mayflower Compact 1620	in Present. C Apo. of Mary fooled	
22	D	26th a. C . Pres. Kennedy assas. 1963	yah.	
23	M.	$\delta\psi\text{C}$ on Harvard 29	Eq. Yale 29, 1963 Snow &	
24	Tu.	$\delta\delta\text{C}$ Now prune grapevines	Tides {8.8 {8.3 sleet,	
25	W.	$\delta\delta\text{C}$ Foul or fair So next Feb.	Tides {9.1 {8.4 my	
26	Th.	Thanksgiving Day	$\delta\psi\text{C}$ {9.5 {8.5 sweet.	
27	Fr.	$\delta\psi\text{C}$ Hew not too high lest chips fall in thy eye	Don't	
28	Sa.	Crescent Moon in West (30th)	Midwest storms 1950, 1958, 1960 roam,	
29	D	Abdent Stat. in R.A.	{10.3 {8.9 stay	
30	M.	Andrew Apostle $\delta\psi\text{C}$ low	rides {10.5 {— home.	

If Christmas falls on a Sunday, a
troublesome winter you shall see.

1970] DECEMBER, TWELFTH MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.		0 /		Days.		0 /		Days.		0 /		Days.		0 /	
	1	21	49	7	22	37	13	23	09	19	23	24	25	23	24	
2	21	58	8	22	44	14	23	13	20	23	24	26	23	23		
3	22	07	9	22	50	15	23	17	21	23	24	27	23	20		
4	22	14	10	22	55	16	23	20	22	23	25	28	23	17		
5	22	22	11	23	01	17	23	22	23	23	24	29	23	14		
6	22	30	12	23	05	18	23	23	24	23	24	30	23	10		

- ☾ First Quarter, 5th day, 3 h. 36 m., evening, E.
- ☉ Full Moon, 12th day, 4 h. 03 m., evening, E.
- ☾ Last Quarter, 20th day, 4 h. 09 m., evening, W.
- New Moon, 28th day, 5 h. 43 m., morning, E.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉		Key	☾		Key	Length of Days	Sun	Full Sea, Boston.		☾	Key	☾	Key	☾	☾
			Rises	h. m.		Sets	h. m.				Morn.	Eve.						
335	1	Tu.	6 53	N 4 14	D	9 21	27	0 1/2	0 1/2	9 52	P	6 43	C	CAP	18			
336	2	W.	6 54	N 4 13	D	9 19	26	1 1/4	1 1/2	10 35	O	8 00	D	AQR	19			
337	3	Th.	6 55	N 4 13	D	9 18	26	2	2 1/4	11 08	M	9 17	E	AQR	20			
338	4	Fr.	6 56	N 4 13	D	9 17	25	3	3 1/4	11 36	L	10 33	G	PSC	21			
339	5	Sa.	6 57	N 4 13	D	9 16	25	4	4 1/4	12 00	J	11 47	H	PSC	22			
340	6	D	6 58	N 4 13	D	9 14	25	5	5 1/4	12 23	I	—	—	ARI	23			
341	7	M.	6 59	N 4 13	C	9 13	24	6	6 1/4	12 45	H	1 01	J	ARI	24			
342	8	Tu.	7 00	O 4 13	C	9 12	24	6 3/4	7 1/2	1 10	F	2 15	K	TAU	25			
343	9	W.	7 01	O 4 13	C	9 11	23	7 3/4	8 1/2	1 37	E	3 30	M	TAU	26			
344	10	Th.	7 02	O 4 13	C	9 11	23	8 3/4	9 1/4	2 11	C	4 46	N	G'M	27			
345	11	Fr.	7 03	O 4 13	C	9 10	22	9 1/2	10 1/4	2 52	B	6 00	P	G'M	13			
346	12	Sa.	7 04	O 4 13	C	9 09	22	10 1/2	11	3 43	A	7 08	P	G'M	14			
347	13	D	7 04	O 4 13	C	9 08	21	11	11 3/4	4 41	B	8 07	Q	—	—			
348	14	M.	7 05	O 4 13	C	9 08	21	—	0	5 45	B	8 55	P	CNC	15			
349	15	Tu.	7 06	O 4 13	C	9 07	20	0 1/2	0 3/4	6 52	D	9 34	O	CNC	16			
350	16	W.	7 07	O 4 14	C	9 07	20	1 1/4	1 1/2	7 58	E	10 04	N	LEO	17			
351	17	Th.	7 07	O 4 14	C	9 06	19	2	2	9 02	F	10 29	L	LEO	18			
352	18	Fr.	7 08	O 4 14	C	9 06	19	2 3/4	3	10 04	G	10 50	K	LEO	19			
353	19	Sa.	7 09	O 4 14	C	9 06	19	3 1/2	3 3/4	11 05	I	11 09	J	VIR	21			
354	20	D	7 09	O 4 15	C	9 06	18	4 1/4	4 1/2	—	—	11 27	I	VIR	22			
355	21	M.	7 10	O 4 15	C	9 06	18	5	5 1/2	12 06	J	11 46	G	LIB	23			
356	22	Tu.	7 10	O 4 16	C	9 06	17	6	6 1/4	1 08	K	12 05	F	LIB	24			
357	23	W.	7 11	O 4 16	C	9 06	17	6 3/4	7 1/4	2 12	L	12 28	E	SCO	25			
358	24	Th.	7 11	O 4 17	C	9 06	16	7 1/2	8	3 20	N	12 57	D	SCO	26			
359	25	Fr.	7 11	O 4 18	C	9 06	16	8 1/4	9	4 30	O	1 32	C	SGR	27			
360	26	Sa.	7 12	O 4 18	C	9 07	15	9	9 3/4	5 39	P	2 18	B	SGR	28			
361	27	D	7 12	O 4 19	C	9 07	15	10	10 1/2	6 45	P	3 16	B	CAP	29			
362	28	M.	7 12	O 4 20	C	9 07	14	10 3/4	11 1/4	7 43	P	4 25	B	CAP	0			
363	29	Tu.	7 13	O 4 21	C	9 08	14	11 1/2	—	8 30	O	5 42	C	CAP	1			
364	30	W.	7 13	O 4 21	C	9 08	13	0	0 1/4	9 08	N	7 02	E	AQR	2			
365	31	Th.	7 13	O 4 22	C	9 09	13	1	1 1/4	9 39	L	8 21	F	AQR	3			

DECEMBER hath 31 days.

[1970



In snowy shroud the earth is bowed,
And Nature mourns beside the bier;
From lowering skies the wild wind sighs,
The requiem of the dying year.

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	Tu.	Do not marry until July 13	Mutiny U.S.S. Somers 1842	Dry
2	W.	1st Successful Dem. Nuclear Reaction Chicago by Fermi 1942		tur-
3	Th.	Oberlin (1st truly coed) College began 1833	{ 9.0 10.3	gid wind
4	Fr.	Cat ♂ What good to live poor	{ 9.0 10.0	is
5	Sa.	Earliest Sun-sets 2-15	1st Cremation U.S. 1876	frigid.
6	D	2nd S. A. Conception of Virgin Mary	on Eq. Tides {9.4 9.4	Now
7	M.	The Great Disaster at Pearl Harbor 1941	Hol. Del. {9.7 9.2	take
8	Tu.	Fancy buttons all the style — 1895		care
9	W.	Clipper James Baines around world 132 days 1854	{10.4 9.1	here
10	Th.	♂ ♀ Gr. El. E. Hol. Wyo.	Tides {10.6 9.1	are
11	Fr.	First Northern Lights seen U.S.A. 1719	{10.8 9.1	storms
12	Sa.	The Full Moon Colds	Runs High {10.8 9.1	your
13	D	3rd S. A. Saint Lucy • (not injured by fire 305 A.D.)		sins will
14	M.	Washington died 1790	Pacific cables began 1902	bare.
15	Tu.	Bill of Rights • Venus Great-est brilliancy	Halycon Days (15-20) bring calm seas	Christmas
16	W.	Boston Tea Party 1773	Wreck of the Hesperus — 1839	{8.5 9.5
17	Th.	at ♂ Shortest Days 17-26	♀ Stat. in R.A. {8.4 9.1	green
18	Fr.	♂ in Apo. more you have no need	{8.3 8.6	but
19	Sa.	4th S. A. Thomas Apostles • Forefathers' Day	on Eq. Tides {8.3 8.3	coldest
20	D	Winter Begins 1.36 A.M.	Sun enters Capricornus {8.4 8.0	that
21	M.	Hanukah [25th] ever	♂ ♀ ♂ [♂ ♀ ♂] ever	been.
22	Tu.	Apollo 8 behind Moon 1968	{9.0 7.9	been.
23	W.	Christmas D. Stephen, Apostle • John Evan.	♂ ♀ ♂ Farewell, in West (29th) rides low	1970
24	Th.	1st S. a. Ch. Holy Innocents	♂ ♀ ♂ inf. {9.8 18.3	You've
25	Fr.	One day can bring what the whole year has not		we're glad
26	Sa.	Latest sunrises now to Jan. 10	Now count your blessings	you're
27	D	Peril. And a Happy New Year!		done.
28	M.			
29	Tu.			
30	W.			
31	Th.			

All towns have stories so remarkable they never become legends but remain living truths. Such in the Cape Cod town of Wellfleet is the story of Aunt Laha.

Drusilla Laha was born September 19, 1787, and at eighteen married a sea captain. Six years later his vessel was wrecked, and he, the only survivor, remained a helpless invalid for sixty years.

Drusilla took over. She had two children, a boy of four, a girl of two. Though without funds, she turned her house into a general store and tavern. (You may reach it to-day, snug and white, behind the dunes at the end of "Poor Pa's Lane.")

Not only did she bring up her own children but adopted twenty more, a story in itself of the now forgotten man—a saint no less—who for years would fill his wagon with orphans or homeless children of Boston, and find good homes for them from Boston to Wellfleet. Aunt Laha's was his last stop, and so, I suppose, she adopted the last of his loads, to bring them up, educate them, love them, and turn them as proudly into the world as her own.

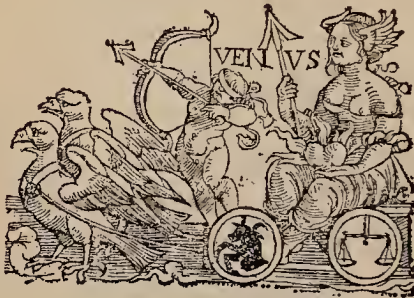
"Ever respondent to suffering, but of unfailing cheerfulness, the life of every occasion" Aunt Laha lived to be just one month less than 100 years.

The Planets, 1970

Below are given the times of rising or setting of the Planets named, on the first, eleventh and twenty-first of each month. The time of the rising or setting of any one of said Planets between the days named may be found with sufficient accuracy by interpolation. For explanation of keys (used in adjusting times given to your town) see page 14. Keys appear below in capital letters.

VENUS

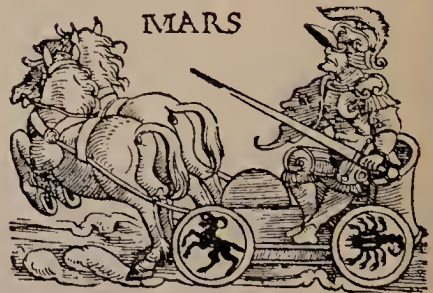
Venus is a Morning Star until January 24th when it comes to Superior Conjunction and again from November 10th when it comes to Inferior Conjunction again. Between January 24th and November 10th it is an Evening Star. Its greatest brilliance in the evening sky is reached on October 6th and in the morning sky on December 16th. It will have been at its greatest elongation west before the year begins and after it ends. Greatest elongation east is reached on September 1st when it will lie 46° east of the Sun.



JAN	1st	rises	6 53 A.M.	O	MAY	1st	sets	8 48 P.M.	N	SEP	1st	sets	7 50 P.M.	F
	11th	"	7 05 A.M.	O		11th	"	9 11 P.M.	O		11th	"	7 28 P.M.	E
	21st	rises	7 11 A.M.	N		21st	"	9 29 P.M.	O		21st	"	7 06 P.M.	D
FEB	1st	sets	5 03 P.M.	E	JUN	1st	sets	9 42 P.M.	O	OCT	1st	sets	6 40 P.M.	D
	11th	"	5 29 P.M.	F		11th	"	9 47 P.M.	O		11th	"	6 08 P.M.	C
	21st	"	5 55 P.M.	G		21st	"	9 46 P.M.	N		21st	"	5 31 P.M.	C
MAR	1st	sets	6 15 P.M.	H	JUL	1st	sets	9 39 P.M.	M	NOV	1st	sets	4 42 P.M.	C
	11th	"	6 40 P.M.	I		11th	"	9 27 P.M.	L		11th	rises	6 33 A.M.	N
	21st	"	7 05 P.M.	J		21st	"	9 13 P.M.	K		21st	"	5 19 A.M.	M
APR	1st	sets	7 33 P.M.	K	AUG	1st	sets	8 53 P.M.	J	DEC	1st	rises	4 25 A.M.	L
	11th	"	7 58 P.M.	L		11th	"	8 34 P.M.	I		11th	"	3 52 A.M.	L
	21st	"	8 23 P.M.	M		21st	"	8 14 P.M.	G		21st	"	3 36 A.M.	L
											31st	rises	3 32 A.M.	M

MARS

Mars is an Evening Star until it reaches conjunction on August 2nd and a Morning Star thereafter for the rest of the year. Mars's brightness is that of a first magnitude star at the beginning of the year. It grows fainter as the year progresses toward its conjunction, brightening slightly thereafter as seen in the sky before sunrise.



JAN	1st	sets	9 34 P.M.	G	MAY	1st	sets	9 08 P.M.	O	SEP	1st	rises	4 17 A.M.	F
	11th	"	9 33 P.M.	H		11th	"	9 02 P.M.	O		11th	"	4 11 A.M.	G
	21st	"	9 32 P.M.	I		21st	"	8 55 P.M.	O		21st	"	4 04 A.M.	G
FEB	1st	sets	9 31 P.M.	I	JUN	1st	sets	8 45 P.M.	O	OCT	1st	rises	3 58 A.M.	H
	11th	"	9 29 P.M.	J		11th	"	8 34 P.M.	O		11th	"	3 51 A.M.	H
	21st	"	9 28 P.M.	K		21st	"	8 21 P.M.	O		21st	"	3 44 A.M.	I
MAR	1st	sets	9 27 P.M.	K	JUL	1st	sets	8 07 P.M.	O	NOV	1st	rises	3 36 A.M.	I
	11th	"	9 25 P.M.	L		11th	"	7 50 P.M.	N		11th	"	3 30 A.M.	J
	21st	"	9 22 P.M.	L		21st	"	7 31 P.M.	N		21st	"	3 23 A.M.	K
APR	1st	sets	9 19 P.M.	M	AUG	1st	sets	8 10 P.M.	M	DEC	1st	rises	3 16 A.M.	K
	11th	"	9 17 P.M.	N		11th	rises	4 30 A.M.	E		11th	"	3 09 A.M.	L
	21st	"	9 13 P.M.	N		21st	"	4 24 A.M.	F		21st	"	3 03 A.M.	L
											31st	rises	2 56 A.M.	M

JUPITER

Jupiter is a Morning Star until it comes to Opposition on April 21st and again after it passes Conjunction on November 9th. It is an Evening Star during the period from April 21st to November 9th. Jupiter is at its brightest from March through May. When at Opposition, Jupiter will lie about 412,000,000 miles from the Earth.

JUPITER



JAN	1st	rises	1 42 A.M.	L	MAY	1st	sets	4 28 A.M.	G	SEP	1st	sets	8 25 P.M.	F
	11th	"	1 09 A.M.	L		11th	"	3 46 A.M.	G		11th	"	7 50 P.M.	F
	21st	"	12 35 A.M.	L		21st	"	3 04 A.M.	G		21st	"	7 16 P.M.	F
FEB	1st	rises	11 52 P.M.	L	JUN	1st	sets	2 19 A.M.	G	OCT	1st	sets	6 42 P.M.	F
	11th	"	11 15 P.M.	L		11th	"	1 38 A.M.	G		11th	"	6 08 P.M.	F
	21st	"	10 36 P.M.	L		21st	"	12 58 A.M.	G		21st	"	5 34 P.M.	F
MAR	1st	rises	10 04 P.M.	L	JUL	1st	sets	12 15 A.M.	G	NOV	1st	sets	4 57 P.M.	E
	11th	"	9 22 P.M.	L		11th	"	11 36 P.M.	G		11th	rises	6 19 A.M.	M
	21st	"	8 39 P.M.	L		21st	"	10 58 P.M.	G		21st	"	5 52 A.M.	M
APR	1st	rises	7 50 P.M.	L	AUG	1st	sets	10 17 P.M.	G	DEC	1st	rises	5 23 A.M.	M
	11th	rises	7 04 P.M.	L		11th	"	9 41 P.M.	G		11th	"	4 54 A.M.	M
	21st	sets	5 10 A.M.	G		21st	"	9 05 P.M.	G		21st	"	4 26 A.M.	M
											31st	rises	3 53 A.M.	M



SATURN

Saturn is an Evening Star until it reaches Conjunction on May 2nd and again from the time of its Opposition on November 11th until the year's end. From May 2nd to November 11th it adorns the sky as a Morning Star. Saturn's greatest brilliance for the year is reached during the month before and the month after Opposition. Its closest approach to the Earth, near Opposition, is at a distance of about 758,000,000 miles.

JAN	1st	sets	1 45 A.M.	K	MAY	1st	sets	5 41 P.M.	L	SEP	1st	rises	9 19 P.M.	E
	11th	"	1 06 A.M.	K		11th	rises	4 19 A.M.	F		11th	"	8 40 P.M.	E
	21st	"	12 28 A.M.	K		21st	"	3 43 A.M.	F		21st	"	8 00 P.M.	E
FEB	1st	sets	11 44 P.M.	K	JUN	1st	rises	3 04 A.M.	F	OCT	1st	rises	7 20 P.M.	E
	11th	"	11 08 P.M.	K		11th	"	2 28 A.M.	F		11th	"	6 39 P.M.	E
	21st	"	10 32 P.M.	K		21st	"	1 52 A.M.	F		21st	"	5 58 P.M.	E
MAR	1st	sets	10 05 P.M.	K	JUL	1st	rises	1 16 A.M.	F	NOV	1st	rises	5 12 P.M.	F
	11th	"	9 30 P.M.	K		11th	"	12 39 A.M.	E		11th	sets	6 34 A.M.	L
	21st	"	8 57 P.M.	L		21st	"	12 02 P.M.	E		21st	"	5 51 A.M.	L
APR	1st	sets	8 20 P.M.	L	AUG	1st	rises	11 18 P.M.	E	DEC	1st	sets	5 08 A.M.	L
	11th	"	7 47 P.M.	L		11th	"	10 40 P.M.	E		11th	"	4 25 A.M.	L
	21st	"	7 14 P.M.	L		21st	"	10 02 P.M.	E		21st	"	3 43 A.M.	L
											31st	sets	3 02 A.M.	L

MERCURY

Mercury is most easily seen when near its greatest elongation. For observation just after sundown the best dates will be on or about those of its greatest eastern elongation, April 18, August 16, and December 10, when it will set 1 h. 51 m., 0 h. 55 m., and 1 h. 19 m., respectively after the sun. For observation just before sunrise the best dates will be on or about those of its greatest western elongation, February 5, June 4, and September 28, when it will rise 1 h. 25 m., 1 h. 00 m., and 1 h. 32 m., respectively before the sun. Mercury will be in Superior Conjunction on March 23, July 6, and October 27, and in Inferior Conjunction on January 13, May 9, September 12, and December 28.

(A Planet is called Morning Star when it is above the horizon at sunrise, and Evening Star when it is above the horizon at sunset. More precisely, it is a Morning Star when it is less than 180° west of the Sun in right ascension and Evening Star when it is less than 180° east. When the planet is near conjunction or opposition, the distinction is unimportant.)

SEASONAL STAR GUIDE, 1970

Maps portraying the starry sky in the evening hours of each of the four seasons appear on the following pages.

The maps are useful throughout the United States, though drawn specifically for Boston. For any point outside Boston the sky will appear essentially as it does at Boston but at a local standard time found by correcting Boston's time by the amount of the place's key letter "I", found in the tables which are part of the Almanac's Regional Forecasts beginning on page 92.

Starviewers in places south of Boston or Lat. 42°21' will be able to see some stars which lie below the southern horizon of Boston at a given time in any season and not see some stars which appear above, but close to its northern horizon. For viewers north of Boston or Lat. 42°21' the situation is the reverse.

No attempt has been made to show all the stars and constellations there are to be seen. The intent is to introduce you only to the brighter stars in the more readily identifiable constellations. When these have become old friends, any one of the many complete star maps which are readily available can be used to extend your knowledge of the starry skies.

BRIGHT STARS, 1970

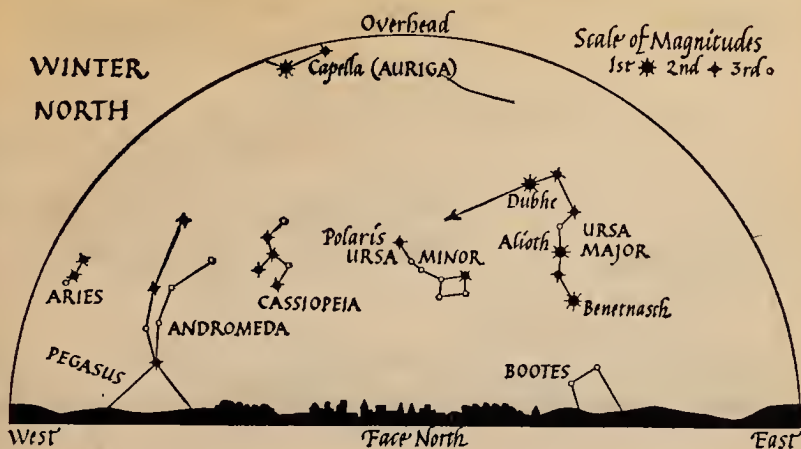
The upper table shows the Eastern Standard Time when each star transits the meridian of Boston on the dates shown, i.e. lies directly above the horizon's south point there, and its altitude above that point at transit. The time of transit on any other date differs from that on the nearest date listed by approximately four minutes of time for each day's difference between the dates. For a place outside Boston the local standard time of the star's transit is found by correcting the time at Boston by the value of key letter "I" for the place. (See footnote.)

Star	Constellation	Magni- tude	Time of Transit (E.S.T.)							Alt.
			Bold face — PM; Light face — AM							
			Jan. 1	Mar. 1	May 1	Jul. 1	Sep. 1	Nov. 1		
Altair	Aquila	0.9	12 50	8 58	4 58	12 58	8 50	4 51	56.4	
Fomalhaut	Pis. Aust.	1.3	3 56	12 04	8 04	4 04	11 57	7 57	17.8	
Aldebaran	Taurus	1.1	9 33	5 41	1 41	9 41	5 38	1 38	64.1	
Rigel	Orion	0.3	10 12	6 20	2 20	10 20	6 17	2 17	39.4	
Bellatrix	Orion	1.7	10 22	6 30	2 31	10 31	6 27	2 27	54.0	
Betelgeuse	Orion	Var.	10 52	7 00	3 00	11 01	6 57	2 57	55.0	
Sirius	Can. Maj.	-1.6	11 42	7 50	3 51	11 51	7 47	3 47	31.0	
Procyon	Can. Min.	0.5	12 40	8 44	4 44	12 45	8 41	4 41	52.9	
Pollux	Gemini	1.2	12 46	8 50	4 50	12 50	8 46	4 47	75.7	
Regulus	Leo	1.3	3 09	11 13	7 13	3 13	11 09	7 10	59.8	
Spica	Virgo	1.2	6 25	2 33	10 29	6 29	2 26	10 26	36.6	
Arcturus	Bootes	0.2	7 16	3 24	11 20	7 20	3 16	11 16	67.0	
Antares	Scorpius	1.2	9 29	5 37	1 37	9 33	5 29	1 29	21.3	

Risings and Settings. The times of the star's rising and setting at Boston on any date are found by applying the interval shown to the time of the star's transit on that date, subtracting it for the star's rising, adding it for its setting. These times for a place outside Boston are found by correcting the times found for Boston by the values of the key letters shown. (See footnote.) The directions in which the star rises and sets shown for Boston are generally useful throughout the United States.

Star	Int. h m	Rising		Setting		Star	Int. h m	Rising		Setting	
		Key	Dir.	Key	Dir.			Key	Dir.	Key	Dir.
Altair	6 36	G	EbN	K	WbN	Procyon	6 23	H	EbN	J	WbN
Fomalhaut	3 59	Q	SE	A	SW	Pollux	8 01	A	NE	Q	NW
Aldebaran	7 06	E	ENE	M	WNW	Regulus	6 49	F	EbN	L	WbN
Rigel	5 33	K	EbS	G	WbS	Spica	5 23	L	EbS	F	WbS
Bellatrix	6 27	H	EbN	J	WbN	Arcturus	7 19	D	ENE	N	WNW
Betelgeuse	6 31	G	EbN	K	WbN	Antares	4 17	P	SEbE	B	SWbW
Sirius	5 00	M	ESE	E	WSW						

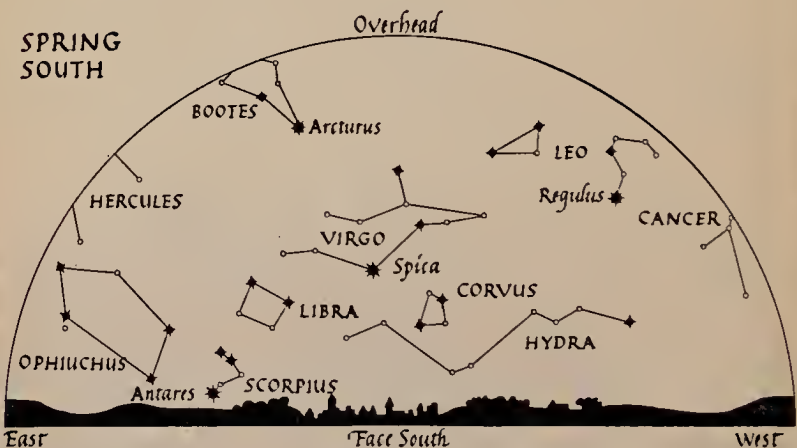
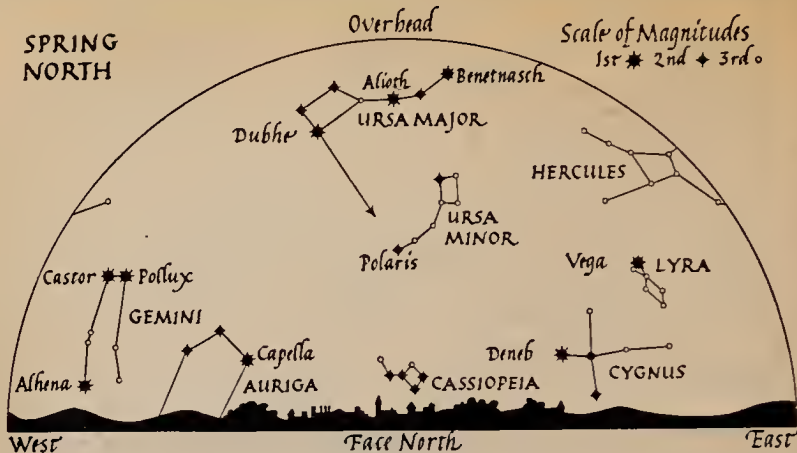
NOTE: The values of key letters are given in the tables within the Regional Forecasts beginning on page 92.



STAR CHART, DEC., JAN., FEB., MAR.

The maps show the night sky as it appears, looking north and south respectively, about 12:40 A.M. on December 21, Midnight on January 1, 10 P.M. on February 1, and 8 P.M. on March 1, standard time. Apply four minutes per day to the time on a date shown to find the time on an intermediate date. For example: February 6's time equals 10.00 (Feb. 1) minus 20 minutes (5×4), or 9:40 P.M.

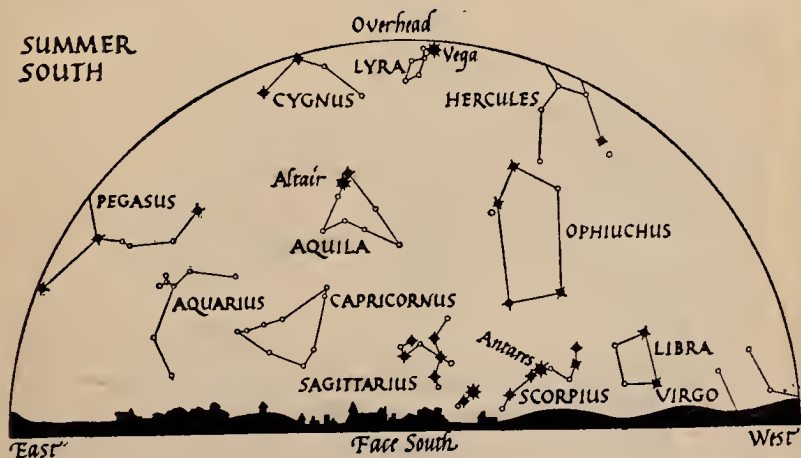
Jupiter, in Virgo, and Venus are morning stars until January 24th and Jupiter alone thereafter, though Mercury will be visible before sunrise around February 5th. After January 24th, Venus joins Mars and Saturn as evening stars. Saturn, the easternmost, lies in Aries. Mars and Venus move rapidly eastward toward Saturn, Mars from a point in Aquarius. Venus from one west of Antares in Scorpius. Mars overtakes Saturn on March 17th. The crescent moon reappears in the west on January 9th, February 8th and March 9th. On March 11th it, Mars and Saturn will be close neighbors, with Venus nearby. March 7th brings an exciting eclipse of the sun to viewers in the United States.



STAR CHART, MAR., APR., MAY, JUNE

The maps show the night sky as it appears, looking north and south respectively, about 12.50 A.M. on March 20, Midnight on April 1, 10 P.M. on May 1, and 8 P.M. on June 1, standard time. Apply four minutes per day to the time on a date shown to find the time on an intermediate date. For example: April 14's time equals 10 P.M. (Apr. 1) minus 56 minutes (14×4), or 9.04 P.M.

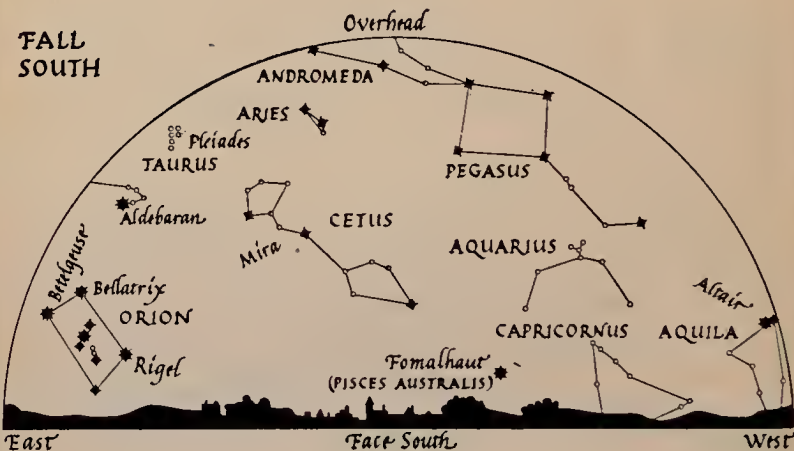
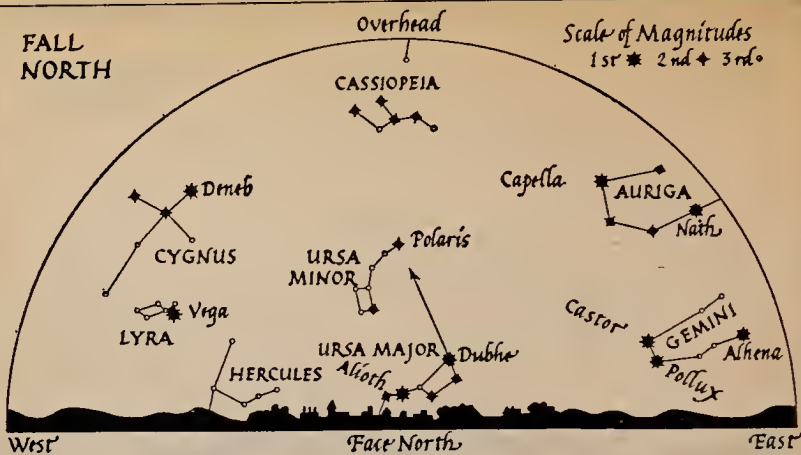
Jupiter joins Mars, Saturn, and Venus as evening stars on April 21st; so, too, Mercury on dates near April 18th. On April 7th the Moon, Mercury, Venus, Mars and Saturn are close neighbors. Thereafter they separate. Mars moves through Taurus into Gemini; Venus from Aries to the vicinity of Leo, passing Mars on May 9th. Jupiter remains in Virgo; Saturn in Aries. Saturn becomes the lone morning star on May 2nd, joined briefly by Mercury on days near June 4th. Mercury will pass between earth and sun on May 9th, a transit visible in the U.S.A. wherever sunrise occurs before 7.13 A.M.E.S.T. The crescent moon reappears in the west on April 7th, May 6th, and June 6th.



STAR CHART, JUNE, JULY, AUG., SEPT.

The maps show the night sky as it appears, looking north and south respectively about 12.45 A.M. on June 21, Midnight on July 1, 10 P.M. on August 1, and 8 P.M. on September 1, standard time. Apply four minutes per day to the time on a date shown to find the time on an intermediate date. For example: August 10's time equals 8 P.M. (Aug. 1) minus 36 minutes (9×4), or 7.24 P.M.

Mars leaves Venus and Jupiter as evening stars on August 2nd, joining Saturn as a morning star. Mercury is briefly visible as an evening star on dates around August 16th. Venus, in moving eastward from Leo into Libra, reaches its greatest eastern elongation on September 1st and passes Jupiter, still located in Virgo, but verging on Libra, on September 14th. On September 4th the crescent moon and these two planets will be close neighbors in the western sky. Mars travels eastward through Gemini and Leo, while Saturn moves eastward to the boundary between Aries and Taurus. The crescent moon lies in the western sky on and after June 6th, July 5th, August 5th, and September 4th.



STAR CHART, SEPT., OCT., NOV., DEC.

The maps show the night sky as it appears, looking north and south respectively, about 12.35 A.M. on September 23, Midnight on October 1, 10 P.M. on November 1, and 8 P.M. on December 1, standard time. Apply four minutes per day to the time on a date shown to find the time on an intermediate date. For example: October 20's time equals 10.00 (Oct. 1) minus 76 m. (19 x 4), or 8.44 P.M.

Jupiter and Venus terminate as evening stars on November 9th and 10th respectively, joining Mars as morning stars. Thereafter these two very bright objects, Venus the brighter, which will lie to the west of Antares in Scorpius, keep close company. Mars, coursing eastward through Virgo and Libra, joins their company in late December. On Christmas morning in particular this trio, joined by the waning crescent moon, form a fine display. Saturn, west of Aldebaran in Taurus, is the sole evening star except when Mercury becomes visible after sunset on and about December 10th. The waxing crescent moon adorns the western sky on and after October 3rd, November 1st and 30th, and December 29th.

OUTDOOR PLANTING TABLE, 1970

The best time to plant flowers and vegetables which bear crops above the ground is during the LIGHT of the moon; that is, between the day the moon is new to the day it is full. Flowers and vegetables which bear crops below ground should be planted during the DARK of the moon; that is, from the day after it is full to the day before it is new again. These moon days for 1970 are given in the "Moon Most Favorable" columns below. See pages 22-44 for exact times and days of the new and full moons. On these pages you will also find in the "Moon's Place" columns, the Zodiac signs for each day. Those most favorable for planting flowers and vegetables which bear crops above ground are ARI, CNC, LIB, AQR, and PSC. The only sign which is good for flowers or vegetables which bear crops below ground is TAU.

The three columns below are for approximately the 42°, 39°, and 34° Latitude parallels. If the latitude of your town (see pages 95-118) is, for example, halfway between 42° and 39°, then you would plant on dates halfway between those given in the 42° column and the 39° column, etc. For every 500 feet above sea level, plant one week later than dates given below:

Above Ground Crops Marked (*) Plant Bet. New and Full Moon— All Others Bet. Full and New E means Early; L means Late.	42° Boston, Chicago, Des Moines, etc.		39° Wash., Cinc., St. Louis, Kan. City		34° Atlanta, Los Angeles	
	Plant Anytime Between Dates Below	Moon Most Favorable	Plant Anytime Between Dates Below	Moon Most Favorable	Plant Anytime Between Dates Below	Moon Most Favorable
*Barley	5-15/6-21	5, 15-20	3-15/4-7	3, 15-22	2-15/3-7	2, 15-21
*Beans (E)	5-7/6-21	5, 15-20	4, 15-30	4, 15-21	3-15/4-7	3, 15-22
(L)	6-15/7-15	6, 15-19	7, 1-21	7, 3-18	8, 7-30	8, 7-16
Beets (E)	5, 1-15	5, 21-31	3-15/4-3	3, 23-31	2, 7-29	2, 22-28
(L)	7-15/8-15	7, 19-31	8, 15-30	8, 7-29	9, 1-30	9, 16-28
*Broccoli (E)	5, 15-30	5, 15-20	3, 7-30	3, 8-22	2-15/3-15	2, 15-21
(L)	6-15/7-7	6, 15-19	8, 1-20	8, 17-20	9, 7-30	9, 7-15
*Brussels Spr.	5, 15-30	5, 15-20	3-7/4-15	3, 8-22	2-11/3-20	2, 11-21
*Cabbage Pl. (E)	5, 15-30	5, 15-20	3-7/4-15	3, 8-22	2-11/3-20	2, 11-21
(L)	6-7/7-7	6, 7-19	7-1/8-7	7, 3-18	8, 15-30	8, 15-16
Carrots (E)	5, 15-30	5, 21-31	3, 7-31	3, 23-31	2-15/3-7	2, 22-28
(L)	6-15/7-21	6, 20-30	7, 7-30	7, 19-31	8-1/9-7	8, 17-29
*Cauliflower Pl. (E)	5, 15-30	5, 15-20	3-15/4-7	3, 15-22	2-15/3-7	2, 15-21
(L)	6-15/7-21	6, 15-19	7-1/8-7	7, 3-18	8, 7-30	8, 7-16
Celery (E)	5-15/6-30	5, 21-31	3, 7-30	3, 23-30	2, 15-28	2, 22-28
(L)	7-15/8-15	7, 19-31	8-15/9-7	8, 17-29	9, 15-30	9, 16-28
*Corn, Sw. (E)	5-10/6-15	5, 10-20	4, 1-15	4, 6-15	3, 15-29	3, 15-22
(L)	6, 15-30	6, 15-19	7, 7-21	7, 7-18	8, 7-30	8, 13-16
*Cucumber	5-7/6-20	5, 7-20	4-7/5-15	4, 7-21	3-7/4-15	3, 8-22
*Eggplant Pl.	6, 1-30	6, 4-19	4-7/5-15	4, 7-21	3-7/4-15	3, 8-22
Endive (E)	5, 15-30	5, 21-30	4-7/5-15	4, 22-30	2-15/3-20	2, 22-28
(L)	6, 7-30	6, 20-30	7-15/8-15	7, 19-31	8-15/9-7	8, 17-29
*Flowers (All)	5-7/6-21	5, 7-31	4, 15-30	4, 15-21	3-15/4-7	3, 15-22
*Kale (E)	5, 15-30	5, 15-20	3-7/4-7	3, 8-22	2-11/3-20	2, 11-21
(L)	7-1/8-7	7, 3-18	8, 15-31	8, 17-29	9, 7-30	9, 7-15
Leek Pl.	5, 15-30	5, 21-30	3-7/4-7	3, 23-31	2-15/4-15	2, 22-28
*Lettuce	5-15/6-30	5, 15-20	3, 1-31	3, 8-22	2-15/3-7	2, 15-21
*Melon (Musk)	5-15/6-30	5, 15-20	4-15/5-7	4, 15-21	3-15/4-7	3, 15-22
Onion Pl.	5-15/6-7	5, 21-30	3, 1-31	3, 23-31	2, 1-28	2, 22-28
*Parsley	5, 15-30	5, 15-20	3, 1-31	3, 8-22	2-20/3-15	2, 20-21
Parsnip	4, 1-30	4, 22-30	3, 7-31	3, 23-31	1-15/2-4	1, 22-31
*Peas (E)	4-15/5-7	4, 15-21	3, 7-31	3, 8-22	1-15/2-7	1, 15-22
(L)	7, 15-30	7, 15-18	8, 7-31	8, 7-16	9, 15-30	9, 15-
*Pepper Pl.	5-15/6-30	5, 15-20	4, 1-30	4, 6-21	3, 1-20	3, 8-20
Potato	5, 1-15	5, 21-31	4, 1-15	4, 22-30	2-10/3-1	2, 22-28
*Pumpkin	5, 15-30	5, 15-20	4, 23/5-15	5, 6-20	3, 7-20	3, 8-20
Radish (E)	4, 15-30	4, 22-30	3, 7-31	3, 23-31	1-21/3-1	1, 22-31
(L)	8, 15-30	8, 17-29	9, 7-30	9, 16-27	10, 1-21	10, 16-21
*Spinach (E)	5, 15-30	5, 15-20	3-15/4-20	3, 15-22	2-7/3-15	2, 16-21
(L)	7-15/9-7	7, 15-18	8-1/9-15	8, 1-16	10, 1-21	10, 16-21
*Summer Squash	5-15/6-15	5, 15-20	4-15/5-1	4, 15-21	3-15/4-15	3, 15-22
*Swiss Chard	5, 1-30	5, 15-20	3-15/4-15	3, 15-22	2-7/3-15	2, 7-21
*Tomato Pl.	5, 15-30	5, 15-20	4, 7-30	4, 7-21	3, 7-20	3, 8-20
Turnip (E)	4, 7-30	4, 22-30	3, 15-30	3, 23-31	1-20/2-15	1, 20-22
(L)	7-1/8-15	7, 19-31	8, 1-20	8, 17-20	9-1/10-15	9, 16-28
*Wheat (Winter)	8, 11-15	8, 11-16	9-15/10-20	10, 1-15	10-15/12-7	10, 15
(Spring)	4, 7-30	4, 7-21	3, 1-20	3, 8-20	2, 15-28	2, 15-21



CAP'N LOVETT'S CHOICE OF WEAPON

by John Sherbourn Sleeper

This is the true version of the celebrated duel between Captain Zachariah Lovett of New Bedford and Captain Bigbee of the English military which took place in Demerara circa 1840.

Captain Bigbee interrupted a game of pool in which Captain Lovett was engaged. He demanded full use of the table and picked up several of the balls.

"Put those balls on the table, you scoundrel," remarked Captain Lovett, "and leave the room."

"Who do you call scoundrel, you Yankee blackguard? Do you know you are talking to one of His Majesty's officers? Take that!" Wherewith Captain Bigbee slashed Captain Lovett with his cue. Whereupon Captain Lovett floored the former with a blow of his knuckles upon his forehead.

Thereupon a billet was handed Captain Lovett by a Lieutenant James. This turned out to be a formal challenge to a duel. To which, Captain Lovett agreed and named as the place "a secluded spot, to-morrow morning, on the bank of the Green Canal near the South Quay."

At the appointed hour, Lieutenant James, speaking for Captain Bigbee, asked Captain Lovett "if he was willing to fight with swords. If so, we have with us, the small sword, the cut-and-thrust, and the cutlass. As the challenged party you have the right to select your arms."

"I shall not fight with swords," replied Captain Lovett.

"I expected as much," replied the Lieutenant, "so I have brought along a beautiful pair of duelling pistols, with long barrels, rifle bores, and hair triggers. What distance shall I measure off?"

"Eight paces."

"Only eight paces," cried Lieutenant James. But he measured it off and placed his man at his post. Then he presented Captain Lovett with a pistol.

"I do not fight with pistols! My weapon is the harpoon." He then asked his man, Mate Starbuck, to place one of the harpoons in Captain Bigbee's hands. He took the other and, at eight paces, faced his antagonist.

"Mr. Starbuck," he said fiercely, "stand by to haul that fellow in."

The mate grasped the end of the line as if he were steering a boat bow on to an eighty barrel whale.

At this point, Captain Bigbee threw his harpoon to the ground and fled. His duelling days were over. Even though he changed to another regiment, the story followed him. As a disgraced man, he was sent to "Coventry," and shortly afterwards quit the service.

Courtesy V. D. Tate, Professor-Archivist, U.S. Naval Academy



THE MILLION CAMELLIAS OF SACRAMENTO

Although camellias were introduced direct from the East Indies to the State of Georgia as early as 1715, California did not have them until one hundred and thirty-five years later. It is not likely that Sacramento would have them now in the quantity it does had not James L. F. Warren of Boston come there to mine his gold in commerce. A prosperous nurseryman and florist in Boston, he brought California's first Camellias with him.

In 1850 he opened the "Warren and Company New England Seed Store" at First and J streets in the then little town of Sacramento, California. His first advertisement of Camellias appeared in the Sacramento Union, February 7, 1852.

His advertisement appearing a year later praised the camellia in glowing terms. "This truly magnificent plant, unsurpassed in loveliness, will ere long become acclimated with us to form our pride as an ornamental tree in our garden." How right he was!

Many of the camellias planted so long ago in Sacramento are still thriving. In the older parts of town, in spite of years of neglect, many tall old plants are still putting forth huge crops of blossoms every year. Sacramento is proud of her camellias. Over one million plants are estimated to be growing within the county.

A native of China, where it was long cultivated in royal gardens, the camellia is a woody shrub related to the tea plant. Old plants are often small trees, rather than shrubs. The blossoms come in a great variety of forms and sizes, in shades from pure white, through all shades of pink and red to deep red. There are variegated forms also, some showing pink, white and red on the same bloom. It is a clean, attractive plant with glossy evergreen leaves, very little pollen and no irritating dusts.

So much in love with this flower is Sacramento, that a ten day annual festival is dedicated to the Camellia. The seventeenth is that for 1970, March 6th to 15th.

A queen and eight princesses are chosen from among the students of the three colleges in the area, Sacramento State College, Sacramento City Junior College, and American River Junior College. These girls represent Sacramento at many public events, not just during the festival, but during the year following. The Queen in particular meets visiting celebrities and officials of government throughout the year, and travels to other cities to represent Sacramento at other festivals.

On the following two days of the festival, the annual camellia show is held. This is the oldest continuous camellia show in the country. At the same time, international exhibits are displayed on another floor of the auditorium.

The Camellia Capital International Art and Photography Show is held in Sacramento during the festival. Artists and photographers from around the world show their work at this salon.

"Cheer-up Day" finds several organizations busy distributing camellia blossoms to all patients in hospitals and rest homes.

On the second Saturday, the children of Sacramento have their parade. This parade is unique among festivals of this nature. The parade is limited to children and college students. Floats are no more than six feet long or four feet wide. This keeps the cost of the parade down. The small size of the floats by no means denotes a small parade. In 1969, over thirty thousand children paraded through Sacramento.

Sporting events are the Camellia Invitational Golf Tournament, held the first day, and the Camellia Cup Regatta held on Folsom Lake on the last day.

The final event is a folk dance festival and pageant.

Nina M. Groff

PART TWO

Secrets of the Zodiac & Planets

(Being the interpretation, astrologic, and just for fun,
Of all serious scientific data in Part One.)

FAMOUS DEBOWELLED MAN OF THE SIGNS

- ♈ Aries, head. **ARI**
Mar. 21-Apr. 19
- ♉ Taurus, neck. **TAU**
Apr. 20-May 20
- ♊ Gemini, arms. **G'M**
May 21-June 20
- ♋ Cancer, breast. **CNC**
June 21-July 22
- ♌ Leo, heart. **LEO**
July 23-Aug. 22
- ♍ Virgo, belly. **VIR**
Aug. 23-Sept. 22
- ♎ Libra, reins. **LIB**
Sept. 23-Oct. 22
- ♏ Scorpio, secrets. **SCO**
Oct. 23-Nov. 21
- ♐ Sagittarius, thighs. **SAR**
Nov. 22-Dec. 21
- ♑ Capricornus, knees. **CAP**
Dec. 22-Jan. 19
- ♒ Aquarius, legs. **AQR**
Jan. 20-Feb. 18
- ♓ Pisces, feet. **PSC**
Feb. 19-Mar. 20



Man of the Signs used by Abe Weatherwise, 1784

These signs, abbreviated, appear for each day on pages 22-44. Their meaning is given on pages 56-59. The illustrations, pages 57-59, are the actual patterns as seen in the sky by the ancients (see Hyginus Augusti Liberti, 1570).

The ancients believed (but we do not) that from the knowledge of the location of **each planet** in the heavens at the exact hour of one's birth one can foresee what kind of a life a child will have, what are the child's inclinations, and what sort of education will best serve the child. The heavens (called the Zodiac) were divided into 12 sections (called Signs) of about 30 days each. There follow on the next three pages brief resumes of the (ancient) meanings of each Sign by which the lives of those born within the period shown are governed. Those using the meanings of these Signs for themselves should also be guided by the Sign for each day of the year which appears in the next to the last column on pages 22 through 44. For example: if you were born on February 12, your ruling Sign is always Aquarius; but on February 12 (see Page 24) each year the Moon's Place will probably be in some other sign. Thus each year you will be "under the influence of" the sign shown here as well as the one given for your birthday on pages 22-44. You should "go by" the sign given here, but modify it by the "sign of the day."

The birthstones given under each sign cover respectively, in the order given, the two monthly periods under each sign.

Many readers of this Almanac have asked for information as to which sign is best for the activities listed below. You will note that under each sign (pages 57-59) we have listed the letters pertaining to the activity best carried on **under** that sign. However, if an activity appears as best under Aries (Mar. 21-Apr. 19), any day(s) against which **ARI** appears in the next to the last column of pages 22-44 is also good for that activity. Same with Taurus, etc.

- | | |
|---------------------------------------------------|-------------------------------------------------|
| A Cutting grass or brush, weeding. | H Weaning. |
| B Cutting and setting posts or timbers. | I Slaughtering. |
| C Cutting hay, pruning. | J Operations, pulling teeth. |
| D Planting above ground crops. | K Hards, sheep shearing, buying clothes. |
| E Planting root crops, house painting. | L Business, gambling, taking risks. |
| F Harvesting crops or herbs. | M Fishing. |
| G Breeding, setting hens, creating baking. | N Travel, marriage, romance. |

ARIES

ABBR: "ARI" SIGN: LAMB

Controls the head and face

Belongs to those born Mar. 21-Apr. 19

Ruling Planet, Mars; Birthstone

Jasper, Bloodstone, (Aquamarine);
Colors, Red, Green.

Best for D, L, G, F, I.



To the Greek shepherds, and Egyptians too
Aries meant Spring as it did to Fu-Manchoo.
For you, born under this sign
In 1970 you will find everything benign.

**TAURUS**

ABBR: "TAU" SIGN: BULL

Controls the throat and neck

Belongs to those born Apr. 20-May 20

Ruling Planet, Venus; Birthstone
Diamond, Sapphire; Color, Blue.

Best for E, K, B, I, F, G.

Taurans are famous for "throwing the bull"
In 1970 they won't even have to pull
Poor Ferdinand they'll tease and harass
Until the beast knows not if he's a donkey or an ass.

GEMINI

ABBR: "G'M" SIGN: TWINS

Controls shoulders, lungs, arms,
hands, and the nervous system.

Belongs to those born May 21-June 20

Ruling Planet, Mercury; Birthstone,
Emerald; Color, Green.

Best for J, G, L, A, I, F.



Here now you twins, hear, hear,
For those born under you this is a banner year.
You just better make it so, you bet
Or the wrong end of the stick you'll surely get.

CANCER

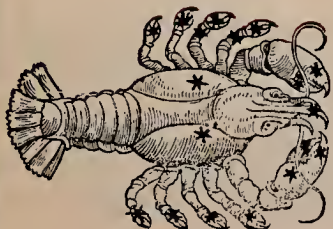
ABBR: "CNC" SIGN: CRAB

Controls breast and stomach

Belongs to those born June 21-July 22

Ruling Planet, Moon; Birthstone,
Agate, (Pearl, Alexandrite, Moonstone)
Color, Blends.

Best for D, M, K, G, I, A, C.



1970 ahoy! This sign's crop ain't soy,
Nor beans, nor pineapples, nor fruit
Its beauty and a band that plays root-a-toot-tute
Stay home, little man, play life on your flute.

LEO

ABBR: "LEO" SIGN: LION

Controls the heart

Belongs to those born July 23-Aug. 22

Ruling Planet, Sun; Birthstone,
Turquoise, (Rnby); Color, Blue-Red.

Best for K, B, A, F, N.



Hi Leo, Hi Juplter, Hi Son, Hi Pa,
1970's the year you've seen from afar,
Your wad of dough you'll double or triple
In land or something that has a ripple.

**VIRGO**

ABBR: "VIR" SIGN: VIRGIN

Controls the lower intestines

Belongs to those born Aug. 23-Sept. 22

Ruling Planet, Mereury; Birthstone,
Carnelian, (Peridot, Sardonyx);
Colors, Red-Brown, Green-Yellow.

Best for J, K, L, A, I, F.

Alas say some of us never agaln
Can we boast of being a virgin.
But in 1970 who wants to, say we
It's more fun this way, honest and tru-lee.

LIBRA

ABBR: "LIB" SIGN: SCALES

Controls the loins

Belongs to those born Sept. 23-Oct. 22

Ruling Planet, Venus; Birthstone,
Chrysolite, (Sapphire);
Colors, Green-Blue.

Best for D, N, K, G, I.



Librans come to life at the start of Fall
In 1970 they'll meet someone dark and tall.
(A female outraneing or a mau going daneing)
Your every move will start jumping and prancing.

**SCORPIO**

ABBR: "SCO" SIGN: SCORPION

Controls the generative organs

Belongs to those born Oct. 23-Nov. 21

Ruling Planet, Mars; Birthstone,
Beryl, (Opal, Tourmaline);
Color, Blends.

Best for M, G, I, A.

Scorpions are always havlug troubles
But in '70 their fears will flee like bubbles
No more doubts or questlons or dlsmay
Just feel free to jump and play, play, play.

SAGITTARIUS

ABBR: "SGR" SIGN: ARCHER
 Controls the thighs
 Belongs to those born Nov. 22-Dec. 21
 Ruling Planet, Jupiter; Birthstone,
 Topaz; Color, Gold.
 Best for J, N, K, F, I, H.



You Sagittarians celebrate the year end cold
 You just love to suffer stories wild and bold.
 But in 1970, it'll be some different
 All you'll see will be golden — and magnificent.



CAPRICORNUS

ABBR: "CAP" SIGN: GOAT
 Controls the knees
 Belongs to those born Dec. 22-Jan. 19
 Ruling Planet, Saturn; Birthstone,
 Ruby, (Turquoise, Zircon);
 Colors, Red-Blue-Green.
 Best for J, G, I, H.

How come Capricornus you've got a double horn?
 Isn't your uncle the famous Unicorn?
 No matter in '70 you'll find nothing forlorn
 You'll just be ecstatic and so glad you were born.

AQUARIUS

ABBR: "AQR" SIGN: WATER BOY
 Controls the legs
 Belongs to those born Jan. 20-Feb. 18
 Ruling Planet, Uranus; Birthstone,
 Garnet; Color, Dark Red.
 Best for D, K, B, I, H, A.



Those born in this sign share it with Lincoln
 What more can you ask, so good or so fittin'?
 In 1970 you can celebrate and loudly shout
 It's my year — of this there can be no doubt.



PISCES

ABBR: "PSC" SIGN: FISH
 Controls the feet
 Belongs to those born Feb. 19-Mar. 20
 Ruling Planet, Neptune; Birthstone,
 Amethyst; Color, Purple.
 Best for D, M, B, G, I, H, C.

Look down, look down on that lowly fish
 From the ocean bottom looking up is only a wish
 Come away, be gay, load up the silver tray
 Take it to that lover you wish to betray.



One of our readers, writing to the editor of his local newspaper, challenged the Almanac's statement that the sun entered Aries at 8:22 A.M. on March 20th, 1968 and Spring began. For sure, the Sun did enter the Sign of the Zodiac called Aries at that time on that date and, equally for sure, the sun was not then to have been found in the constellation so named. The reader was very right on the latter point.

When ancient astronomers defined the Zodiac, that imaginary band around the sky within which all the naked eye planets, as well as fainter Uranus and Neptune, and the moon and sun are found, they divided it into twelve equal parts, called signs, and gave each part the name of the constellation which principally filled its bounds. One boundary line between adjacent signs passes through the Vernal Equinox today as it did then and marks the point and change of sign where the Sun passes from the southern hemisphere of the sky into its northern, bringing Spring to the Earth's northern hemisphere, Autumn to its southern.

It was the discovery of one ancient astronomer, after the Zodiac and its Signs had been established, that pegging this system of signs to the Vernal Equinox as one point was to peg it to a point which held no fixed position among the stars; rather that the Vernal Equinox drifted slowly, but steadily westward among the stars until today it has reached a position within the constellation Pisces. Despite this drift, the names of the Signs of the Zodiac, and their locations, pegged to the Solar Equinoxes and Solstices, remain as when they were invented, even though they have fallen "out of phase" with the constellations that bear the same names.

THE SIGNS HAVE CHANGED POSITION

Astronomically speaking, Spring still begins when the Sun enters the zodiacal sign of Aries. Properly, too, the Almanac lists the zodiacal sign in which the Moon lies in the column devoted to the Moon's Place, not the constellation in which it is to be found at the time.

* * * *

In line with the foregoing, we are also reminded of our correspondence from time to time with one of the Smith Brothers of coughdrop fame. When we set the date of the beginning of the Ides of March to March 5 from March 15 because we felt the former date was nearer to that of the old Romans who began these Ides, he was furious. He demanded we go back to March 15. For no other reason than that of keeping the peace, we did.

However, when it comes to astrology, birthstones, the sign you are born under, and your color — we just wonder if you should not know that actually, each constellation now occupies the space its neighbor to its right did nineteen centuries ago. Now, or rather then, the astrologists had it all figured how it was that you, born then in Leo (July 23-August 22) would have certain characteristics of Cancer. Now, that constellation occupies the section of the heavens which Leo once did. So too, your birthstone today would be the one that goes with Cancer rather than Leo.

Nevertheless, the astrologists do not recognize that this change in the positions of the constellations in the heavens, technically known as the precession, needs to be — when casting horoscopes — taken into account.

Perhaps it would be better to go by the way some of the present day orientals do it. For instance, with these, the year 1970 is that of the "Dog" and anyone born in that year has certain characteristics — just as do those born under Leo or Cancer.



BEST FISHING DAYS, 1970

There are probably more "fishing calendars" sold each year than all the almanacs put together. It is likely that the more mystifying the ingredients of these calendars are, the more popular they become. Almost all agree, however, that fishing is better when 1) the barometer is rising or high; 2) when the moon is between the new and the full; and 3) when the moon is in the astrological sign of Cancer, Pisces or Scorpio. The days listed below in **bold face** are days during which all three of the above conditions will exist—the others listed are those during which 2 out of 3 occur.

Jan. 7-9, 10-11, 13-15, 19-21. Feb. 6, 7-8, 16-17, 20-21. Mar. 6-7, 7-8, 9-13, 15-16. Apr. 3-10, 11-13, 16, 18. May 1, 5-7, 9-10, 18-19. June 3-4, 5-7, 15-16 24-25. July 3-4, 5-11, 12-13, 14-18. Aug. 3-5, 8-10, 14-16, 18-19, 28. Sept. 5-6, 7-12, 13-14, 15, 23-24. Oct. 1, 2-3, 4-6, 11-12, 30-31. Nov. 1-6, 7-8, 9, 30. Dec. 1-3, 4, 5, 23-24.

Here are a few observations, taken from a room full of fishing books and clippings, which may or may not prove helpful:

Water temperatures between 55°F and 74°F are best; the clearer the water, the better, preferably with a slight ripple; south and west winds are the best, or any off-shore breeze.

The best times for fishing (or hunting) are one hour before and after high tide, and one hour before and after low tide. The times of high and low tides are given on pages 22-44 and corrected for your locality on page 89. Low tides are halfway between high tides.

KILLING FROSTS and GROWING SEASONS

Courtesy of U. S. Weather Bureau

City	G.S. (Days)	Last Frost Spring	First Frost Fall
Lander, Wyo.....	123	May 18	Sept. 18
Bismarck, N.D....	133	May 11	Sept. 21
Alpena, Mich.....	141	May 13	Oct. 1
Helena, Mont....	145	May 7	Sept. 29
Reno, Nev.....	145	May 14	Oct. 6
Marquette, Mich..	149	May 13	Oct. 9
Concord, N.H....	149	May 7	Oct. 3
Duluth, Minn....	152	May 6	Oct. 5
Green Bay, Wisc..	157	May 5	Oct. 9
Pocatello, Ida....	160	Apr. 29	Oct. 6
Denver, Colo.....	160	May 3	Oct. 10
Pierre, S. Dak....	160	Apr. 30	Oct. 7
Minneapolis.....	166	Apr. 27	Oct. 10
Detroit, Mich....	170	Apr. 28	Oct. 15
Des Moines, Ia....	171	Apr. 21	Oct. 9
Fort Wayne, Ind..	171	Apr. 25	Oct. 13
Ludington, Mich..	172	May 2	Oct. 21
Albany, N.Y.....	174	Apr. 24	Oct. 15
Madison, Wisc....	174	Apr. 26	Oct. 17
Santa Fe, N.M....	177	Apr. 25	Oct. 19
Hartford, Conn....	177	Apr. 20	Oct. 13
Toledo, Ohio.....	179	Apr. 22	Oct. 18
Portland, Maine..	181	Apr. 19	Oct. 17
Spokane, Wash....	182	Apr. 14	Oct. 13
Parkersburg.....	184	Apr. 17	Oct. 18
Omaha, Neb.....	184	Apr. 14	Oct. 15
Salt Lake City....	185	Apr. 18	Oct. 20
Chicago, Ill.....	186	Apr. 16	Oct. 19
St. Joseph, Mo....	191	Apr. 9	Oct. 17
Trenton, N.J.....	191	Apr. 16	Oct. 24
Springfield, Mo...	193	Apr. 12	Oct. 22
Boston, Mass.....	195	Apr. 14	Oct. 26
Wichita, Kans....	197	Apr. 9	Oct. 23
Cincinnati, Ohio..	198	Apr. 8	Oct. 23
Lewiston, Ida....	201	Apr. 6	Oct. 24
Harrisburg, Pa....	202	Apr. 9	Oct. 28
Evansville, Ind....	207	Apr. 5	Oct. 29
Cairo, Ill.....	212	Mar. 31	Oct. 29
Richmond, Va....	216	Mar. 31	Nov. 2
Roseburg, Ore....	217	Apr. 8	Nov. 11
Oklahoma City....	218	Mar. 30	Nov. 3
Chattanooga.....	220	Mar. 29	Nov. 4
Raleigh, N.C.....	223	Mar. 27	Nov. 5
Little Rock, Ark..	241	Mar. 18	Nov. 14
El Paso, Tex.....	242	Mar. 19	Nov. 16
Tucson, Ariz.....	243	Mar. 11	Nov. 9
Macon, Ga.....	245	Mar. 14	Nov. 14
Columbia, S.C....	246	Mar. 17	Nov. 18
Montgomery, Ala..	250	Mar. 8	Nov. 13
Shreveport, La....	251	Mar. 6	Nov. 12
Portland, Ore....	251	Mar. 15	Nov. 21
San Bernardino...	259	Mar. 8	Nov. 22
Eureka, Calif....	277	Mar. 16	Dec. 18
Del Rio, Tex.....	277	Feb. 23	Nov. 27
Sacramento.....	283	Feb. 19	Nov. 29
Phoenix, Ariz....	296	Feb. 10	Dec. 3
Yuma, Ariz.....	334	Jan. 20	Dec. 20
San Francisco....	350	Jan. 13	Dec. 29
Los Angeles.....	*	*	*
Miami, Fla.....	*	*	*
San Diego.....	*	*	*

*Frosts do not occur every year.

FISH AND GAME SUMMARY

(Format copyrighted — must not be copied.)

Based on latest (mostly 1968-69) available laws courtesy of State Fish & Game Commissioners. For the most part 1970 laws not released until after press date (June, 1969) and so no attempt is made here at accuracy; in fact, only approximations of the months which may include seasons are given. This table useful only for vacation planning considerations and to satisfy curiosity as to what the various states offer in the way of hunting and fishing. Migratory Bird Regulations are available at any post office.

EXACT DATES, LIMITS, ETC. MUST BE VERIFIED LOCALLY.

STATE	SPECIES	ANTELOPE	BEAR	DEER	MT. GOAT SHEEP	ELK	MINK	MUSKRAT	OPOSSUM	RABBIT	RACCOON	SQUIRREL
Alabama			C	11-1			11-2	11-2	10-2	10-2	10-2	10-1
Alaska			9-12	8-12	8-12	8-12	11-1	11-6		O	O	O
Arizona	P-9		4-5, 9-1	10-11	P-12	9-11	O	O	O	O	O	9-11
Arkansas			C	10-12			11-2	11-2	11-2	10-2	11-2	10-12
California	C		9-X	8-X	X	X	X	X	X	7-X	X	8-X
Colorado	P-9		4-10	8, 10, 11	P-8	10-11	O	O	O	10-2	O	10-12
Connecticut				11-12			C	C		10-1	9-1	10-1
Delaware				11			12-3	12-3	O	11-1	9-3	9-10
Florida			11-1	11-1							O	11-2
Georgia			11-1	10-1			11-2	11-2	10-2	11-2	11-2	10-2
Hawaii	S		X	S	O	X	X	X	X	X	X	X
Idaho	S		O	9-12	9	9-12	11-12	11-12		9-2	O	C
Illinois				11, 12P			11-1	11-1	11-1	11-1	11-1	8-10
Indiana				10-12			11-1	11-1	11-1	11-1	11-1	8-10
Iowa				S			11	11-1	11-2	9-2	10-2	9-12
Kansas	C			P-12			12-1	12-1	12-1	12-10	O	8-12
Kentucky	C		C	11		C	11-1	11-1	11-1	11-1	11-1	8-10
Louisiana			C	11-1			12-1	12-1	12-1	10-2	12-1	11-12
Maine			6-12	10-11			11	11, 4		10-3	8-12	10-11
Maryland			C	9-12			1-3	1-3	9-3	11-1	9-3	10-11
Massachusetts	X		10-12	11, 12	X	X	11-1	11-12	9-12	10-2	9-12	10-11
Michigan			9-11	10-12		X	10-1	10-1	O	10-2	10-12	10-11
Minnesota			O, S	11			11-12	11-12		10-2	O	10-12
Mississippi			C	11-1			12-2	12-2	12-2	10-2	11-1	10-12
Missouri			S				C	C	11-10	5-2	11-10	5-12
Montana	10-11		10-11	10-11	9-11	10-11	S	S	O	O	O	O
Nebraska	9		11	11			11-1	11-3	O	O	O	9-1
Nevada	8-9			10-11	11-1	11-12	11-3	11-3		10		
New Hampshire			9-12	11-12			10-2	10-2		10-3	8-12	10
New Jersey			12	12			11-3	11-3		11-12	11-12	11-2
New Mexico	9-10		8-12	10-12	S	10-1	12	11-4	O	O	O	O
New York			10-12	10-12			10-4	10-4	O	10-2	10-3	10-1
Long Island			X	S			12-3	12-3	O	11-1	11-2	11-1
North Carolina			10-1	10-1			11-2	11-2	11-2	11-2	11-2	10-1
North Dakota	8-12			8-12	C	C	11-12	11-12	X	O	O	9-12
Ohio			C	11			11-2	11-2	11-2	11-1	11-2	9-12
Oklahoma	9		C	11	C	11	12-1	12-1	12-1	10-2	12-1	5-12
Oregon	P-8		8-12	10	P	10-11	11-1	11-2	O	O	O	9-10
Pennsylvania			11	10-1		C	11-1	11-3	O	10-1	O	10-1
Rhode Island				12						11-1	10-1	11-12
South Carolina			C	8-12			S	S	S	S	S	S
South Dakota	9		X	11	C	S	11-12	11-12	11-4	S	O	O
Tennessee	X		10	10-11	X	X	10-2	12-2	10-2	11-2	10-2	9-12
Texas	9-10		11-12	11-12	C	12	11-1	11-3	O	O	O	S
Utah			P	11-9	P	P	10-5	O	X	10-3	X	O
Vermont	X		9-11	10, 11	X	C	10-2	10-4	O	9-2	8-12	9-11
Virginia			11-12	11S		C	C	C	10-1	11-1	10-3	9-10
Washington	C		O	10-11	9-10P	11	11-1	11-3	O	10-2	O	C
West Virginia			11, 12	11-12			11-2	11-2	O	11-2	10-1	9-1
Wisconsin			9-11	9-12			10-1	11-12	O	10-1	S	10-1
Wyoming	9-11		46, 9-11	9-11	9-11	9-11	11-5P	O	O	9-4	O	O

SPECIALS IN CERTAIN STATES:

ALLIGATOR: Ala. (C), Fla. (6-1), Ga. (C), Miss. (C) — BUFFALO: Alas (S), Ariz. (P-10), Minn. (O), S.D. (O), Utah (P), Tex. (C) — CARIBOU: Alas (8-3) — COUGAR: Ariz. (O), Nev. (O) — IBEX, KUDU, GEMSBOK: N. Mex. (C) — CHACHALACA: Tex. (12-1) — JAVELINA: Ariz. (2-3), N. Mex. (X), Tex. (11-12) — MOOSE: Alas (8-11), Ida. (P), Mont. (9-11), Utah (P), Wyo. (9-10) — WILD BOAR: Cal. (X), Fla. (S), Haw. (O), N.C. (10-12),

SYMBOLS USED PAGES 62 AND 63

Months: January is represented by the numeral "1" — February by the numeral "2", etc. Seasons: In the columns under the various animals, birds, and fishes you will note numerals. Thus "12-3" means the season opens in December and closes in March. A number alone means the season opens and closes within that month. Thus "12" alone means the season is December. A number followed by a comma denotes two seasons: thus "9, 12" would mean one September and another in December. "O" means no closed season; "X" not available; "S" special seasons; "C" closed; "P" permit only.

VERIFY EXACT OPENING & CLOSING DATES IN EVERY CASE.

PARTRIDGE GROUSE	PHEASANT	QUAIL	TURKEY	STATE	SPECIES	BASS	CATFISH PERCH SUNFISH CRAPPIE	PIKE PICKEREL	SALMON	BROOK TROUT	LAKE TROUT	WHITEFISH
		11-2	3-4, 11-1	Alabama.....		O	O	O	O	O	O	O
8-5				Alaska.....		O	O	O	O	O	O	O
10-1	P-11	10-1	5, 10-11	Arizona.....		O	O	O-X	O	O	X	X
C	C	12-2	4	Arkansas.....		O	O	O	O	O	O	O
9	X	10-X	C	California.....		O	O	O	2-11	5-11	5-11	5-11
9	11-12	11-12	10	Colorado.....		O	O	O	O	O	O	O
10-12	10-12	10	C	Connecticut....	4-2	O	O	4-2	4-2	4-10	4-10	O
10-12	11-1	11-2	X	Delaware.....		O	O	O	O	4-11	O	O
		11-2	11-1	Florida.....		O	O	O	O	O	O	O
11-2		11-2	11-2	Georgia.....		O	O	O	C	4-10	O	O
11-1	11-1	11-1	C	Hawaii.....		O	O-X-O-X	X	X	8-9	X	X
9-12	10-12	9-12	S	Idaho.....		O	O	X	S	6-11	4-11	O
11-12C	11-12	11-12	C	Illinois.....		O	O	O	O	O	O	O
10-11	11-12	11-12	C	Indiana.....		O	O	O	O	5-10	O	O
11-9	11-12	10-12	C	Iowa.....		O	O	O	O	O	O	O
11	11-12	11-12	C	Kansas.....		O	O	O	5-2	O	O	O
	C	11-1	S	Kentucky.....		O	O	O	4-1	O	O	O
		11-2	4	Louisiana.....		O	O	O	O	O	O	O
10-11	10-11		C	Maine.....	6-9	4-9	4-9	4-9	4-9	4-9	4-9	4-9
11-1	11-1	11-1	10	Maryland.....		O	O	O	O	O	O	O
10-1	10-11	10-11	C	Massachusetts..	4-2	4-2	4-2	4-10	4-2	4-10	X	X
10-12	10-11	11	S	Michigan.....	6-12	O	5-3	4-11	4-9	O	4-9	O
10-11	10-11	C	C	Minnesota.....	5-2	O	5-2	O	5-9	1-9	O	O
		12-2	4	Mississippi.....		O	O	O	X	X	X	X
	5	11	4	Missouri.....	5-2	O	O	O	O	O	O	O
9-11	10-11	X	5, 9	Montana.....	5-11	O	O	5-11	5-11	5-11	5-11S	O
9-10	11-1	11-1	4, 11	Nebraska.....		O	O	O	O	O	O	O
10	11	11	10-11	Nevada.....		O	O	S	O	O	O	O
10, 12	10, 11	10, 12	X	New Hampshire..		O	O	O	4-9	5-9	1-9	1-9
11-1	11-12	11-2	C	New Jersey.....		O	O	O	C3-4	C3-4	C3-4	O
9	11-12	11-1	10-11, 4	New Mexico.....		O	O	O-X	X	5-11	X	X
10-1	10-11	10-11	5, 10-11	New York.....	6-11	O	5-2	4-9	4-9	4-9	4-9	4-9
11-12	11-12	11-12	C	Long Island..	6-11	O	5-2	4-9	4-9	4-9	4-9	4-9
10-2	11-2	11-2	12-2, 4-5	North Carolina..	O	O	O	O	O	O	O	O
9-12	10	11P	11P	North Dakota..	5-12	O	5-12	X	5-12	X	X	X
10-2	11-1	5S	5S	Ohio.....		O	O	O	O	O	O	O
O	11	11-1	11, 4	Oklahoma.....		O	O	O	O	O	O	O
10-11	10-11	10-11	11P	Oregon.....		O	O	X	O	4-10	4-10	O
10-1	11	11	5-11	Pennsylvania...	6-3	O	5-3	4-9	4-9	4-9	O	O
10-1	10-12	11-12		Rhode Island...	4-2	O	4-2	O	4-2	O	O	O
S	S	11-2	S	South Carolina..		O	O	O	O	O	O	O
9-10	10, 11	11	4, 5, 10, 11	South Dakota..	O-S	O-S	O-S	X	O	X	X	X
11-2	C	11-2	4-5	Tennessee.....		O	O	O	X	O	X	X
C	S	11-1	11-12	Texas.....		O	O	C	X	X	X	X
9-12	11	11	P	Utah.....		O	O	O	6-11	6-11	6-11	6-2
10-11	10	10	10	Vermont.....	6-11	O	4, 3	4-9	4-9	4-9	O	O
11-2	P	11-1	11-12	Virginia.....		O	O	O	O	4-12	4-12	O
9-1	10-12	10-1	10	Washington....		O	O	O	O	4-10	4-10	S
10-2	11-1	11-2	10-11, 45	West Virginia...		O	O	O	O	O	O	O
10-11	10-11	S	S	Wisconsin.....	5-2	O	5-2	O	5-9	1-9	O	O
10-11	10-11	10-11	10-11	Wyoming.....		O	O	O	O	O	O	O

Tenn. (10), Tex. (10), BLUEGILL: Ariz. (O), Ga. (O), Ind. (O), Ia. (O), Mich. (4-9), N. M. (O), S. D. (O), Tenn. (O) — BULLFROGS: Ariz. (6-11), Ark. (4-12), Del. (5-12), Haw. (O), Idaho (6-10), Ill. (6-8), Iowa (O), Ind. (4, 6-10), Kans. (7-9), La. (6-3), Md. (O), Mo. (7-11), Neb. (7-10), Nev. (O), N. Mex. (8), Ohio (6-4), Ore. (O), Pa. (7-10), Tenn. (O), W. Va. (6-7), Wis. (5-12) — SHAD: Calif. (O), Conn. (4-X), Del. (3-6), Fla. (1-4), Ga. (1-4), Ia. (O), Md. (3-9), N. H. (1-8), Ore. (O) — STURGEON: Ariz. (C), Ida. (O), Iowa (C), Mich. (O), Ore. (O), S. Dak. (O), Wis. (S) — TERRAPIN: Fla. (X), Pa. (O), Tenn. (O).

THE 1968 GUN CONTROL LAW

At midnight, December 31, 1968, the Gun Control Act of 1968 became law. All interstate sales of rifles, shotguns and their ammunition except between licensed manufacturers, dealers, and collectors, either by mail order or over the counter are now banned. Handguns, such as pistols and revolvers, had already been banned from interstate sale by the Anti-Crime Bill of 1968. Some of the stipulations and exceptions to the law follow:

- Enforced by Internal Revenue Service.
- The 1934 National Firearms Act was amended so that firearms of .50 caliber bore and larger, machine guns, sawed-off shotguns, short rifles, mortars, bazookas, rockets, anti-tank guns, grenades, etc. cannot be transferred without a \$200 Treasury Department Registry fee.
- Manufacturers or importers of these destructive devices must buy a \$1000 license each year.
- Curios, antiques (over 50 years old), guns with a bizarre design or of museum interest are exempt. I.R.S. passes on such.
- Certain states may enact legislation to enable citizens to purchase guns from a neighboring border state.
- Age of 21 required for all handgun buyers, 18 for rifles or shotguns.
- Dealers cannot sell to criminals, fugitives, mental defectives, or drug addicts.
- Hunters, target shooters may transport firearms across state lines. Individuals may ship guns anywhere for repairs or receive inherited guns from any place. One whose gun has been lost or damaged may buy another on the spot—provided his hometown chief law enforcement is notified. Non-residents may borrow or rent from residents.
- A mail order company may make intrastate sales if it notifies

the chief law enforcement of the home town of the purchase of the latter's intent to purchase and then waits seven days before shipment.

- Cases, bullets, primers, powder are all considered ammunition—except shotgun shot and unprimed nonmetallic shotgun shell cases.
- Shooting clubs may sell or hand out ammunition, without having a license, to members for use on local premises. They may also distribute it to persons under 18.
- Dealer's licenses may not be obtained for the sole purpose of purchasing at wholesale prices.

THERE ARE OTHER STATE LAWS NOW ON THE BOOKS OR SOON WILL BE WITH WHICH YOU SHOULD BE FAMILIAR AND OF COURSE ALWAYS OBSERVE.

WIND CHILL TABLE WIND SPEED

TEMP.	10	20	30	40
+50°	40	32	28	26
+30°	18	4	-2	-6
+20°	4	-10	-18	-21
+10°	-9	-25	-33	-37
0°	-21	-30	-48	-53
-10°	-33	-53	-63	-69
-20°	-46	-67	-79	-85

The above table shows how, as wind speed increases the temperature against your body falls. At 20° above in a 10 mph wind you experience 4° above exposure. Properly dressed you can take down to about 20 below. Below that use extreme caution.

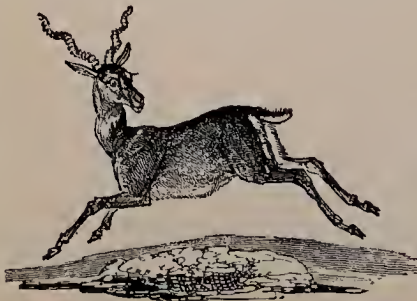
Courtesy, Army, Navy, Air Force

At 10 mph you just feel wind on face; at 20 small branches move, dust or snow raised; at 30 large branches move, wires whistle; at 40, whole trees move.

DEGREE DAYS

Most newspapers carry this term along with daily temperatures, humidity, etc. It signifies the number of degrees that the mean temperature for that day fell below 65.

Example: If the highest temperature for any given day were 52, and the lowest 39, the mean would be 46. As 46 is 19 below 65, the Degree Day figure for that day would be 19. These degree days are also added together for each day after Sept. 1 when the heating season begins and compared with normal.



POOR OLD ROBINSON CRUSOE

(Monroe & Francis published early in the 19th century a children's Life of Robinson Crusoe. They advertised it in this famous song.)



When I was a lad, I had
cause to be sad,
My grandfather I did lose, O!—
But now to my plan—
You've heard of a man,
Whose name it was
Robinson Crusoe.
Poor old Robinson Crusoe!
Poor old Robinson Crusoe!
But now to my plan—
You've heard of a man,
Whose name it was
Robinson Crusoe.
You've read in a book
of a voyage that he took—
The raging winds that
blew so,
The ship, with a shock,
struck plump on a rock,
Near drowned poor
Robinson Crusoe.
Poor old Robinson Crusoe!
Unlucky old Robinson Crusoe!
The ship, with a shock,
struck plump on a rock,
Near drowned poor
Robinson Crusoe.

Poor soul, none but he
remained on the sea—
O fate, fate, how
could you do so!
Then ashore he was thrown,
on an island unknown,
What luck for poor
Robinson Crusoe!
Poor old Robinson Crusoe!
Poor old Robinson Crusoe!
Then ashore he was thrown,
on an island unknown,
What luck for poor
Robinson Crusoe!
He wantd to eat, and
he tried for some meat—
But the goats all away
from him flew so—
If not for his gun,
he'd been surely undone,
And ended poor Robinson
Crusoe.
Poor old Robinson Crusoe!
Poor old Robinson Crusoe!

If not for his gun,
he'd surely been undone,
And ended poor Robinson
Crusoe.
He happened to save,
from the merciless wave,
A parrot—I assure you
'tis true so—
And when he came home
from his wearisome roam,
She cried out, "Poor
Robinson Crusoe!"
Poor old Robinson Crusoe!
Poor old Robinson Crusoe!
And when he came home
from his wearisome roam,
She cried out, "Poor
Robinson Crusoe!"

Then he'd a man Friday,
who kept his house tidy—
They lived to the last, sir,
as servant and master—
'Twas Friday and Robinson
Crusoe.
Poor old Robinson Crusoe!
Poor old Robinson Crusoe!
They lived to the last, sir,
as servant and master—
'Twas Friday and Robinson
Crusoe.
He wore a fur cap, and
a coat with long nap,
And a beard as long
as a Jew's, O—
And though he was clever,
he looked like a beaver.
Much more than like
Robinson Crusoe!
Poor old Robinson Crusoe!
Poor old Robinson Crusoe!
And though he was clever,
he looked like a beaver,
Much more than like
Robinson Crusoe!

A bright, English sail
came at last within hall,
And he took to his
little canoe so—
Then reaching the ship,
they gave him a trip,
To the country of
Robinson Crusoe.
Lucky old Robinson Crusoe!
Lucky old Robinson Crusoe!
Then reaching the ship,
they gave him a trip,
To the country of
Robinson Crusoe.





THE COURTSHIP OF ARTEMAS WARD

There was many affectin ties which made me hanker arter Betsy Jane. Her father's farm jined ourn; their cows and ourn squenched their thirst at the same spring; our old mares both had stars in their forreds: the measles broke out in both famerilies at nearly the same period; our parients (Betsy's and mine) slept regularly every Sunday in the same meetin house, and the nabers used to observe — "How thick the Wards and Peasleys air!" It was a sublime sight in the spring of the year, to see our several mothers (Betsy's and mine) with their gowns pin'd up so that they couldn't sile 'em, affeeshuntily bilin soap together and aboosin the nabers. Altho I hankered intensely arter the ob-jeck of my affeekshuns I darsent tell her of the fires that was rajin in my manly Buzzum. I'd try to do it, but my tung would ker-whollop up agin the roof of my mowth & stick thar, like deth to a deceast Afrikan or a country postmaster to his offis, while my hart whanged agin my ribs like an old fashioned wheat fale agin a barn door. 'Twas a carm still nite in Joon. All natur was husht, and nary zeffe disturbed the screen silens. I sot with Betsy Jane on the fense of her father's paster. We'd bin rompin threw

the woods, kullin flours & drivin the woodchuck from his nativ lair (so to speak) with long sticks. Wall, we sot thar on the fense, a swingin our feet two and fro, blushing as red as the Baldwinville school house when it was fust painted, and lookin very simple, I make no doubt. My left arm was okeped in ballunsin myself on the fense, while my rite was woundid luviny round her waste. I cleared my throat and trembinly sed — "Betsy you're a gazelle." I thought that air was purty fine. I waited to see what effeek it would have upon her. It evidently didn't fetch her for she up and said — "You're a sheep!" Sez I — "Betsy, I think very muchly of you." "I don't b'leeve a word you say — so there no, cum!" with such obsarvashun she hitched away from me. "I wish thar was winders to my sole!" sed I, "so that you could see some of my feelins. There's fire enuff in here," sed I striking my buz-zum with my fist. "to bile all the corn beef and turnips in the naberhood. Versoovius and the critter ain't a circumstans." She bowed her hed down and comenst chawin the strings of her sun bonnet. "An, could you know the sleepless nites I worry threw with on your account, how vittles has seised to be attractiv to me, & how my lims has shrunk up, you wouldn't dowt me. Gase on this wastin form and these ere sunken cheeks!" I should have continnered on in this strane probly for sum time, but unfortunately I lost my ballunse and fell over into the paster ker smash, tearing my close and severly damagin myself gincerally. Betsy Jane sprung to my assistance in dubble quick time and dragged me 4th. Then drawin herself up to her full hite, she sed: "I won't listen to your non-cents no longer. Jes say rite strate out what you're drivin at. If you mean getting hitched, I'm in." I considered that air enuff for all practical purposes, and we proceeded immejitly to the parson's, and was made one that very nite.

SER-VIL-I-TEE, SIR!

New England's classic
after-dinner story



The late Robert Foote of Little Compton, Rhode Island was able to identify himself sympathetically with the seafaring characters in this story. The language of the characters became alive and real. The audience vividly pictured in its mind not only the scene but the characters as well.

The real test of any story teller is this New England "classic" — called Cap'n Simmons and Civility. Properly told this one can be truly entertaining.

'Twas on the whaler Mozambique. An' I wuz forrard, an' I hears the man in the crow's nest say: "Thar she blows!" An' I goes aft, an' I says: "Cap'n Simmons," says I, "the man on the lookout says: 'Thar she blows.' Shall I lower?" He tuk a look at the clouds, Cap'n Simmons did, an' he says: "Mr. Simms," says he, "it's a-blowin' quite too peart, an' I don't see fitten for to lower." An' I went forrard.

An' the man on the lookout sings out again: "Thar she blows and spouts!" An' I goes aft. An' I says to Cap'n Simmons, says I: "Cap'n Simmons," says I, "thar she blows and spouts. Shall I lower?" An' Cap'n Simmons, he says to me, says he: "Mr. Simms," says he, "as I told you once before, the wind is blowin' quite too peart, an' I don't see fitten for to lower." An' I went forrard.

An' the lookout hailed again. "On deck, sir," says he. "Thar she blows, an' spouts, an' breaches!" An' I goes aft. "Cap'n Simmons," says I, "thar she blows, an' spouts, an' breaches! Shall I lower?" An' Cap'n Simmons, he tuk another look at the seuddin' clouds, an' he says to me, says he: "Mr. Simms," says he, "It's

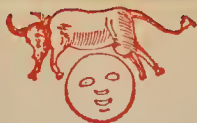
a blowin' right smart peart, an' I don't see fitten for to lower; but you may lower if you like, an' be dommed to ye!"

An' I went forrard, an' sings out for volunteers, an' the boys just tumbles over each other a-droppin' into the boat. An' I tuk the steerin' oar aft, an' we chased that critter into the middle of the next watch.

"Way enough, boys," says I. "Now put me just three seas nearer an' give me the iron, because I'm hill on the long dart." An' they gin me the iron — an' I socked it to her — an' it tuk. Daown she goes, an' the rope fairly smoked as it payed out of the tub an' aroun' the roller. Up she comes, clost alongside, an' I give her the lance, an' that settled her.

An' thar stood Cap'n Simmons at the gangway with tears in his eyes as big as fishballs. An' he says: "Mr. Simms," says he, "forty years," says he, "I've sailed the seas," says he, "as man an' boy, an' you're the best fust mate I ever see. You're the finest mate that ever sailed on the good ship Mozambique. Mr. Simms," says he, "down in my cabin, in the forrard till of the port locker, you'll find whisky, gin, terbacker, an' the best New England rum. Them's yourn for the rest of the v'y'ge."

An' I says to him, says I: "Cap'n Simmons," says I, "I don't want your whisky, nor your gin an' your terbacker, nor your best New England rum. All I wants from you, sir, for the rest of this v'y'ge, is ser-vil-i-tee, and that of the domdest kind!"



SCIENTIFIC PROGRESS

1968-69

A summary of developments in various fields of endeavor of presumable interest to lay readers. Sources (available on request) are scientific journals published from May 1968 through April 1969.

THE WEATHERVANE OF SCIENCE

is now shifting from the conquering of the natural world to the discovery of ways to live in harmony with it. Those scientists who are "discovering" the conception of children without intercourse, atomic plants which pollute our air and waters, planes which break our windows and ear drums, et al are not those, they will soon find out, whom the public and its congressmen will fund. The demand for scientists leads to those who can discover how we and our children and their children can live happily with what we have.

LARGEST UNDERWATER

treasure hunt in the world is now going on at Silver Shoals, a West Indies coral reef. Target is a Spanish galleon sunk there, in 1641 with 20 to 100 million in gold bullion on board.

FOG AND SMOG

are not yet clearly understood. Control of air and water pollution will lessen their hurtfulness. Vegetation planted thickly around swamps will keep them from spreading . . . as will a chemical film spread on the surface. Artificial wind is used to blow them away. Seeding with chemicals at times shortens their lives. Fuel oil fires will burn these off limited areas (expensive!).

OIL

fields discovered on the northern coast of Alaska are said to be the largest (10 billion barrels) petroleum accumulations in the world. A pipe line 900 miles long will be constructed to carry this oil to warm-weather ports.

SHEEP SHEAR

themselves apparently when fed a substance in the nitrogen mustard family. The substance loosens the hair just above the roots—so it can easily be removed.

THE COMMON COLD

is not necessarily caused by exposure to cold. It is thought that more colds in winter than summer are explained by people crowding indoors. Many believe, however, changes in temperature up or down thin or thicken one's blood—thus giving a virus more of a chance.

A MACHINE TOOL

can now cut over a 30-inch length with precision of two millionths of an inch a straight line 20 millionths of an inch wide. The shavings float away in the air.

THE HUMAN SKIN

harbors numerous microbes, some good, some evil, at all times. The male axilla supports about 2.41 million bacteria per sq. centimeter—the scalp about 1.5 million; feet over 300 bacteria per sq. centimeter. All in all it's quite a bit of life, after all, alive on us.

ACOUSTICS OF THE VIOLIN

have been said to depend on its wood, its size and construction, and its varnish—the last being the most important. It is now believed the

varnish is the least important, and that the kind of varnish matters not.

A 97 YEAR OLD

murder was discovered by neutron-activation analysis in the frozen grave of Charles F. Hall in Greenland by revealing large quantities of arsenic in the man's hair and fingernails.

ADULT DREAMS

occur about every 90 minutes. As the night proceeds the cycles become shorter. In a cat the cycle is 30 minutes, in a rat 12 minutes. Babies dream about every hour. It is entirely possible the adult cycle continues, unbeknownst to us, while still awake.

AT SAN FRANCISCO

and to its southeast, some of the experts are saying a severe earthquake along the San Andreas and Hayward Faults is imminent. They talk this year—they talked of 1969—and they talk within the next 30 years. They warn that earthquake resistant construction is necessary now to say nothing of preparations against what might be a major disaster.

SAILING SHIPS

cannot sail faster than the wind driving them. However, when sailing at an angle of 120 degrees to this wind they have traveled twice as fast as the wind.

HIGH SCHOOL STUDENTS

looking for summer jobs should send for Directory of Summer Opportunities for Science Training, (sponsored by National Science Fdn.) Operations Unit, Assoc. Dir. Educ., National Science Foundation, Washington, D.C. 20550. (no charge)

A NEW DRILLING

operation from the ship **Glomar Challenger** is breaking all records for deep ocean drilling. It has found oil under 12000 feet of water and 500 feet of ocean bottom sediment. Samples from this may reveal the secrets of Llanoria. In 17500 feet of water off the Bahamas drill cores indicate the Atlantic to be 50 million years older than we thought it was.

CLIMATE CHANGES

may be forthcoming if the theory is correct that the ocean at the North Pole is about to become an open sea. There is disagreement among the experts, however. Some say it is now becoming far less open than it was.

THE RUSSIANS

with their floating fish factories have now prodded us into a couple of our own—the **Seafreeze Atlantic** and the **Seafreeze Pacific**—capable of filleting a million pounds of fish per month.

FLOATING CITIES

may be the coming thing. These will house some 5000 persons and weigh 150,000 tons. These have schools, markets, all on board and when joined to additional platforms of more people (up to 100,000) have hospitals, colleges and industry.

FIREBALLS

are common in the sky but few have landed on earth as productive of samples as was the one at Allende, Mexico, on February 8th, 1968. The SACSLP collected over 100 kilograms of rare meteoritical material from it.

KNOWLEDGE

now has an Availability System Center at Pittsburgh, Pa. Here are stored some 250,000 unclassified NASA documents. This is veritably a vast bank of information and intelligence which should not be overlooked.

THE OCEAN BOTTOM

now has its first permanent geophysical station. It belongs to Columbia University and is located in $2\frac{1}{2}$ miles of water, 124 miles west of San Francisco. It measures storms, quakes, currents and tides.

ORIGIN OF THE MOON

Theorists don't believe the moon escaped from the earth, or that it was formed as a double planet with the earth, or that it was captured by the earth. Some think it may have been captured in an orbit going in a reverse direction around the earth, or it collided during a same-direction orbit with other objects near the earth. Both earth and moon are now thought to be some $4\frac{1}{2}$ billion years old.

INFRARED ASTRONOMY

in the far-IR, between 2 microns and 2 mm., has aroused new interest in the "big bang" hypothesis of relative cosmology—which says that a dense cloud of matter exploded 10^{10} years ago and continues to explode today.

THE OLD EARTH

wobbles because of her deformations (produced by major earthquakes) about 40 feet every 14 months. She is nearly half a degree cooler than she was 30 years ago and is building a pollution area between herself and the sun (the U.S. contributes over half of it).

AIRCRAFT LANDING

systems are lagging way behind other advances in aeronautics. Our low visibility landing problem is the great challenge of this decade. The existing VHF-UHF systems are not considered adequate by all . . . nor do crabapple sensing, heading alignment, beam monitors, beam deflection, pilot displays or visual aids hold all the answers.

JUPITER

now that Mars has been found to be a series of craters in an atmosphere and Venus too hot to live with, is the planet the scientists are looking at for the explanation of the origins of the other planets—including our earth. It is 318 times larger than the earth—has the same gases that were here on earth when our first organisms were formed. This planet is the Rosetta Stone of the solar system and carries the greatest potential for future exploration.

SPACE STATIONS

are about to be placed in orbit round about us because we now know how to build them, how to live on them, and how to study from them. They will hold 50 to 100 people . . . in perhaps permanent residence in an earth-like environment—or for at least tens of thousands of hours.

THE SST

and the SONIC BOOM protests are getting almost nowhere. The Concorde is having its trial flights. Government (U.S.) in league with aircraft manufacturers does not want other countries to get ahead of us—even though getting ahead means extra useless expense—and will most assuredly reduce our present declining quotient of happy peaceful living.

A PERPETUAL CALENDAR

such as the one proposed by Dr. E. A. Edwards of Honolulu may soon be coming in. The U.S. Government has already changed (for 1971) the celebrating days of four holidays to Mondays—and various states are proceeding to go Uncle Sam one or two better. Dr. Edwards feels that this calendar below should be adapted for each and every year not only here but—the world over. And by the way start writing your dates "1970 March 1" from now on out. The computers will make you do so if you do not.

THE PERPETUAL CALENDAR

Each Quarter and Each Year the Same

NEW YEAR'S DAY (N.Y.D.) precedes Monday, January 1 as a holiday apart. It is the first day of each year and the third day of an annual 3-day week end. It is followed by the 364-day calendar shown below.

N.Y.D.	JANUARY							FEBRUARY							MARCH						
1st	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Q	1	2	3	4	5	6	7			1	2	3	4	5					1	2	3
U	8	9	10	11	12	13	14	6	7	8	9	10	11	12	4	5	6	7	8	9	10
A	15	16	17	18	19	20	21	13	14	15	16	17	18	19	11	12	13	14	15	16	17
R	22	23	24	25	26	27	28	20	21	22	23	24	25	26	18	19	20	21	22	23	24
T	29	30						27	28	29	30				25	26	27	28	29	30	31
	APRIL							MAY							JUNE						
2nd	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Q	1	2	3	4	5	6	7			1	2	3	4	5					1	2	3
U	8	9	10	11	12	13	14	6	7	8	9	10	11	12	4	5	6	7	8	9	10
A	15	16	17	18	19	20	21	13	14	15	16	17	18	19	11	12	13	14	15	16	17
R	22	23	24	25	26	27	28	20	21	22	23	24	25	26	18	19	20	21	22	23	24
T	29	30						27	28	29	30				25	26	27	28	29	30	31
	JULY							AUGUST							SEPTEMBER						
3rd	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Q	1	2	3	4	5	6	7			1	2	3	4	5					1	2	3
U	8	9	10	11	12	13	14	6	7	8	9	10	11	12	4	5	6	7	8	9	10
A	15	16	17	18	19	20	21	13	14	15	16	17	18	19	11	12	13	14	15	16	17
R	22	23	24	25	26	27	28	20	21	22	23	24	25	26	18	19	20	21	22	23	24
T	29	30						27	28	29	30				25	26	27	28	29	30	31
	OCTOBER							NOVEMBER							DECEMBER						
4th	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Q	1	2	3	4	5	6	7			1	2	3	4	5					1	2	3
U	8	9	10	11	12	13	14	6	7	8	9	10	11	12	4	5	6	7	8	9	10
A	15	16	17	18	19	20	21	13	14	15	16	17	18	19	11	12	13	14	15	16	17
R	22	23	24	25	26	27	28	20	21	22	23	24	25	26	18	19	20	21	22	23	24
T	29	30						27	28	29	30				25	26	27	28	29	30	31

LEAP YEAR DAY (L.Y.D.) comes between June 31 and July 1 in leap years as a second holiday apart. These two **YEAR DAYS (N.Y.D. and L.Y.D.)** are definitely named and have a definite purpose. Considered apart from any week or month, they allow the calendar to become fixed and perpetual. This will be of inestimable value to the business, educational, and social world. You are invited to endorse and support this plan and to write to Congress and the U.N. requesting its adoption.

A PROPOSAL FOR AN INTERNATIONAL STANDARD CIVIL CALENDAR

Anecdotes and Pleasantries



In the 1830's village ladies enjoyed spinning and quilting bebies, singing schools, and—as illustrated by the cut above—"paw parties." These look to us like our "Blind Man's Buff" and we just wonder if these two are the same?

FIRST CAR RADIO

The first car radio was installed in Fritz Wagner's Dolly Madison Baking Truck on September 1, 1925. Wagner's route took him from Springfield, Massachusetts into Westfield and neighboring towns.

MATRIMONY, 1793

The following calculation has been made of the state of the Married Couples in England. It is to be hoped it is not quite correct.

Wives eloped from their husbands	1,348
Husbands ran away from their wives	2,361
Married pairs in a state of separation from each other	4,120
Married pairs living in a state of open war, under the same roof	191,320
Married pairs living in a state of inward hatred for each other, though under the same roof	162,023
Married pairs in a state of coldness and indifference for each other	510,533
Married pairs reputed happy in the esteem of the world	1,102
Married pairs comparatively happy	135
Married pairs absolutely and entirely happy	NONE

DAFFYNITIONS

Satin: Past tense of sit-in
Tweed: Call uttered by a bird with a cold in the head
Gaberdine: Loquacious member of college faculty

Seersucker: Gullible fortune teller
Overlap: Head man in Lapland
Autocracy: A society dominated by automobiles

Gorgonzola: Medusa singing alone

Barometer: An instrument for measuring the number of drinks served over a bar.

Norman L. Knight

MILLIONAIRES IN 1851

The richest men in Suffolk Co., Massachusetts in 1851, were Abbott Lawrence and Ebenezer Francis, both worth 3 million. Others over the million mark were Thomas Wigglesworth, John Welles, John E. Thayer, William Sturgis, Robert G. Shaw, Joshua Sears, David Sears, Jonathan Phillips, Thomas H. Perkins, William Lawrence, Amos Lawrence (Amos and William were brothers of Abbott, all natives of Groton), John L. Gardner, Edward Dwight, and John Bryant, Josiah Bradlee, Nathan Appleton, and Samuel Appleton.



THE VERMONT HUNTERS

The above scene taken from The Pictorial Reader of 1847 by Bentley presents the closing act of a truly remarkable hunting excursion.

Braintree, Randolph, Roxbury, Bethel, Kingston, Rochester, Warren, Northfield, Westfield, and other Vermont towns had held meetings and agreed to destroy all the wild animals by which they had been constantly annoyed.

Ten thousand men fully-armed marched to surround a valley for the period of one day. The next day these men were in the heights around the valley—the wild animals running in confusion down below.

Gradually, the men closed in and killed 27 bears, 5 wolves, 1 moose (he lies in the foreground above), 83 foxes and numerous deer, wild-eats, raccoons, porcupines, and rabbits.

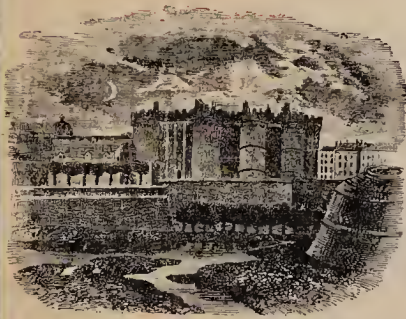
U.S. FLAG ALWAYS FLIES

by authority of the Congress and/or the President at only 5 places, night and day—

- 1) Fort McHenry National Shrine, Baltimore, Md.
- 2) Flag House Square, E. Pratt St., Baltimore, Md.
- 3) U.S. Marine Corps (Iwo Jima Memorial), Arlington, Va.
- 4) Battle Green, Lexington, Mass.
- 5) City Cemetery, Nashville, Tenn. (over grave of William Driver who named the flag "Old Glory". Driver was a retired sea captain from Salem, Mass.) .

ON CRUELTY TO ANIMALS

A Man of kindness to his beast is kind,
But brutal actions show a brutal mind:
Remember, He who made thee, made the brute;
Who gave thee speech and reason, formed him mute;
He can't complain, but God's all-seeing eye
Beholds thy cruelty—He hears his cry.
He was designed thy servant, not thy drudge;
And know,—that his CREATOR is thy JUDGE!

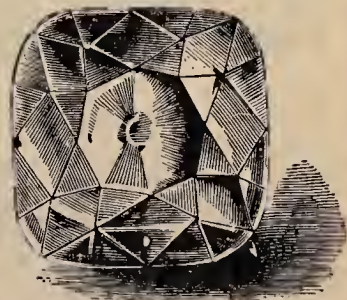
THE BASTILE

One of the worst prisons of the world was the Bastille of Paris, France. Built in the year 1369, it was destroyed by Revolutionists in 1789. It held 50 to 100 prisoners—many of whom were kept for years awaiting trial. Treatment varied from starvation and torture to luxurious suites. The worst of the place was that no man was ever free from the threat of imprisonment there—at the whim of every minister. During the reign of Louis XI, the worst cruelties happened there—and the greatest mystery of the prison was the Man in the Iron Mask. He died Nov. 19, 1703.

APRIL FOOL'S DAY

Said to have begun from the mistake of Noah in sending the Dove out of the ark before the water had abated, on the first day of the month among the Hebrews, which answers to our first of April. To perpetuate the memory of this, it was thought proper, whoever forgot so remarkable a circumstance, to punish them by sending upon some sleeveless errand similar to that upon which the bird was sent by the Patriarch.

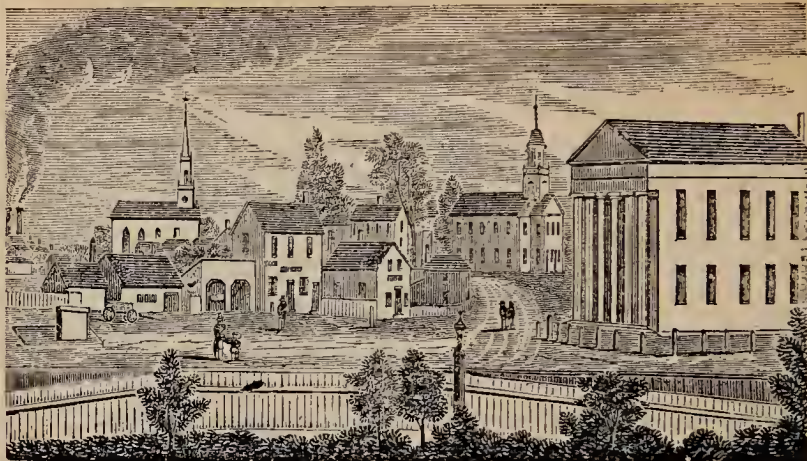
Public Advertiser, April 13, 1789

**THE REGENT DIAMOND.**

The Regent diamond is the finest and best cut stone in the world. It was named after the Duke of Orleans and weighed, before cutting 410 carats, after cutting, 136.

**THE KOHINOOR-**

One of the most famous diamonds in the world is the Kohinoor. It was said to have been worn by a King of India in 3000 B.C. It was given to the Queen of England on July 3, 1850. However its refractions were disappointing, so much so that the stone was recut under the supervision of the Duke of Wellington. He held it firmly against a revolving wheel covered with diamond dust, facet by facet, until each of the facets were complete. When the operation was finished, this diamond had a brilliant blaze—so much so it was called the Mountain of Light.



MORE CAPE COD RECIPES

Reader response to Albert E. Snow's family recipes in the 1969 Old Farmer's Almanac prompts us to include additional dishes from the same source. Mr. Snow, who supplied the recipes to us in 1965 mentioned that several well-known restaurants on the Cape were excellent for testing and tasting such old-fashioned recipes as these: Currier's on Main Street, Plymouth; Landfall in Wood's Hole, Coonamesset Inn in Falmouth, Mildred's Chowder House in Hyannis, Riverway in So. Yarmouth at Bass River, Orleans Inn in Orleans, and the Flagship in Provincetown. (Better check first before you visit any of these as some may by now be closed or have new names.)

PROVINCETOWN CREAMED CODFISH

½ pound salt codfish	¼ tsp. pepper
2 tbsp. butter or margarine	1 cup milk
2 tbsp. flour	Dash of Tabasco sauce
	1 egg—beaten

Cut codfish into ¼" slices across grain. Soak in lukewarm water overnight to draw out salt and soften fish. Drain. Simmer in fresh water 10 minutes. Melt butter or margarine in saucepan. Add flour and pepper. Blend well. Add milk gradually. Cook until thickened. Add dash of Tabasco sauce, if desired. Pour small amount of cream sauce into beaten egg, stirring constantly. Add drained codfish and mix lightly. Serve on toast or with mashed, baked or fried potatoes. Garnish with chopped parsley. Makes 4 servings.

NAUSET/EASTHAM FISH CHOWDY

One 4 lb. haddock	2 cups potatoes, diced in ½"
3 cups cold water	cubes
¼ lb. fat, salt pork, diced in ¼" cubes	4 cups rich milk, scalded
6 onions, sliced fine	2 tbsp. butter
2 tbsp. flour	salt and pepper
	3 sprigs of parsley—minced

Skin the haddock. Save the head and the tail. Cut out the back-bone. Save same. Cut up the fish into 2" pieces. Into saucepan put in the head, tail, backbone and any odd remnants of meat. Add cold water. Bring slowly to boiling point, then let simmer 30 minutes. Cut pork into ¼" cubes. Place them in another saucepan to try 'em out till crisp and browned. Empty pork bits, standing them aside. Into their fat add the onions, frying them slowly for 5 or 10 minutes, till browned. Remove onions. Stir in the flour. Slowly add the broth drained from bones, stirring continuously to avoid lumping. Add diced potatoes, onions, fish. Cover. Simmer slowly for an hour, until potatoes lose their stiffness some. Add hot milk, butter, salt and pepper to taste. Add minced parsley. Simmer 5 minutes longer. Accompany with warmed pilot biscuits, oysterettes, or common crackers. Serves 8 people.

SHRIMP SALAD

- | | |
|--------------------------------|-------------------------------|
| 2 cups cleaned, cooked shrimps | 2 cups diced celery |
| 1 tsp. finely chopped onion | $\frac{1}{2}$ cup mayonnaise |
| 3 tbsps. lemon juice | $\frac{1}{4}$ cup chili sauce |
| 2 or 3 hard-cooked eggs | Lettuce |

Wash unshucked shrimps in cold water, then drop into salted boiling water. When water boils again, lower heat and simmer 5 minutes. Remove shucks by breaking under shell and opening from front to back, peeling off the shells. Let shrimps chill in their own liquid until salad is ready to be mixed. Drain well. Have remaining ingredients chilled. Combine first 6 ingredients lightly but thoroughly. Slice eggs and arrange in a ring on lettuce-lined individual salad plates. Pile salad mix in center of ring. Serves 5.

BEEF STEW — Cape Cod Style

- | | |
|-----------------------------------------------------|----------------------------------------|
| $1\frac{1}{2}$ lbs. boneless beef chuck | 2 tsp. salt |
| 2 tbsps. fat | pepper to taste |
| 3 cups boiling water | $\frac{1}{2}$ tsp. paprika |
| 1 tsp. lemon juice | dash of cloves |
| 1 tsp. worcestershire sauce | 1 tsp. sugar |
| 1 small, or $\frac{1}{2}$ medium-sized clove garlic | 3 large or 4 medium carrots, quartered |
| 1 medium onion, sliced | 8 small onions |
| 1 bay leaf | 2 or 3 potatoes, cut in lengths |

Cut beef into $1\frac{1}{2}$ inch cubes. Brown slowly on all sides, in fat. Add boiling water, lemon juice, worcestershire sauce, garlic, onion, bay leaf, and seasonings. Cover. Simmer over low heat 2 hours. Add more boiling water if needed. 30 to 40 minutes before meat is done, add carrots, onions and potatoes. Continue cooking until vegetables are done. Meat and vegetables may be removed and gravy thickened if desired. Serves 6.

BAKED BEANS

- | | |
|----------------------------------------------|----------------------------------|
| 1 lb. ($2\frac{1}{2}$ cups) navy, pea beans | $\frac{1}{2}$ tsp. dry mustard |
| 1 tbsps. salt | $\frac{1}{4}$ tsp. ground cloves |
| 1 cup firmly packed dark brown sugar | 2 tsp. minced onion |
| | 5 oz. fat salt pork |

Soak beans overnight in water. Simmer over low heat 1 hour. Mix salt, sugar, dry mustard, cloves and onion. Stir into beans. Turn into a $2\frac{1}{2}$ qt. bean pot. Bury salt pork in beans. Add boiling water to bring liquid to surface. Cover and bake in slow oven 300° for 6-7 hours. Keep beans moist by adding boiling water as necessary. During last hour, remove lid. Yield — 8 servings.

JOHNNY CAKES (thick or scalded)

- | | |
|-------------------------------------|----------------------------------|
| 2 or 3 cups finely ground corn-meal | 1 or $1\frac{1}{2}$ tbsps. flour |
| | 1 to 2 tsp. salt |

Pour boiling water over a little at a time until thoroughly moistened, but not too soft. Add a little sweet milk. Drop dough on hot greased griddle to make little cakes. Pat out to $\frac{1}{2}$ or $\frac{3}{4}$ " thick. Put a dab of bacon, sausage, hamfat, or butter on top of each cake. Brown and turn. Do not cook too fast. Goes well with meat or fish courses.

OYSTER STEW

- | | |
|--------------------------------------------------------------------------------------------|-----------------------------------------------|
| 1 pint oysters | milk) |
| $\frac{1}{4}$ cup (one-half stick) butter | $\frac{1}{2}$ tsp. salt |
| 1 quart milk, scalded (one-half cup heavy cream may be substituted for one-half cup of the | pepper to taste |
| | celery salt to taste |
| | $\frac{1}{2}$ tsp. worcestershire sauce (opt) |

Pick over oysters. Heat them in their liquor until their edges begin curling. Add the scalded milk and seasonings. Serve at once. If desired, serve sprinkled with paprika. Yield: 4 servings.

QUAHOG FRITTERS

- | | |
|--------------------------------------------------------------------|----------------------------------|
| 1 pint quahogs—chopped fine (squeeze out the blacks, discard them) | ening. |
| 1 small onion, chopped fine | 1 thin clove garlic—sliced fine |
| 1 tbsps. olive oil or melted short- | 1 egg, slightly beaten |
| | $\frac{1}{2}$ tsp. baking powder |
| | pinch of salt and pepper |

Add enough flour to make batter the consistency of whipped cream, mixing well, thinning with the quahog liquor. Drop into piping hot frying pan, using bacon fat, Crisco or Spry. Do not use deep fat. Fry slowly after once starting. Serve hot. Delicious with tomato catsup in place of meat in your dinner menu.

BAKED LOBSTER

1¼ pound lobster per person Onion
Cracker meal Garlic

Split lobster open from eyes to tail on its underside. Lay flat upon cookie sheet. Spoon out the green. Discard the long black vein from green to tail. Spoon out the inner head. Discard. Mix the green in plenty of cracker meal, and bits of finely chopped onion, into melted butter. Mix to consistency of heavy paste. Small amount of garlic may be added to spiffy the taste. Fill cavity with the mix. Place in pre-heated 350-400° oven. Bake for 20-30 minutes, until done. Place small dip dish melted butter alongside each person. French fried potatoes or potato chips. A tossed salad.

CLAM CAKES

1 quart of shucked clams, with 1 cup fine cracker crumbs
blacks squeezed out. Discard ½ cup clam liquor
blacks. 2 eggs, well-beaten

Drain clams. Save ½ cup of their liquor. Cut and discard tip ends of the necks. Put clams through food chopper. Put clams in dish. Add clam liquor and cracker crumbs to absorb the liquor. Allow to stand 10 minutes. Stir in the beaten eggs. Shape into flat cakes. Don't crowd. Drop into hot deep fat, 375°. Cook until golden brown. Drain off fat by laying upon brown paper bag. Serves 4.

BAKED RAZORFISH

Rare delicacy, taste like & better'n scallops. Member of clam family. fashioned barber's razors.
Their brittle, curved, brown-colored shells 4-10" long, 1" wide, Abundant along shores of Cape Cod Bay — especially Barnstable.
so-called as they resemble old- 6 to 1 dozen for each person
butter, salt, pepper
Save the liquor to dip them in.

Rinse. Bake about 15 minutes in flat pan with combing 1" high to hold juice, in 450° oven. Look in to spot when they open up. Serve in soup plates. With fingers, separate meat from shells. Dip into cup of the liquor to rinse away sand, or shell particles. Dip into a mix of melted butter, salt and pepper. Accompany with warmed pilot biscuits, or oysterettes, common crackers.

RAZORFISH CHOWDER

1 pint of shucked meats ground ¼" squares.
fine in food chopper. 1 large onion, chopped fine
½ cup of their liquor ¼ pound salt pork and/or bacon,
3 medium-sized potatoes, skins chopped into ¼" squares
scrubbed, left on and diced into Salt and pepper to the taste

Try out pork/bacon, until brown, in suitably sized stew-pot. Into the fat, stir the onion until browned. Into the fat and onions, stir in potatoes, to sear them somewhat. Add chopped razorfish, and their liquor. Add hot water, just enough so the batch is awash. Do not boil. Set batch back on stove or turn down burner to simmer and ripen, until potatoes lose their stiffness. Add salt and pepper to your taste. Haul off stove. Allow to cool. Bottle this base. Stow in refrigerator. When ready to use, dump into saucepan, reheat to simmer. Add simmered milk, bringing the chowder to desired consistency. Dust with paprika, as served. Serves 4. If stretched with milk, serves 6.

KIPPERED HERRING

Pour boiling water over herring, allow to stand 5 minutes. Drain. Place/spread butter over each one. Place in very hot oven until edges curl — about 3 minutes. Serve with toast or baked potatoes.

KIPPERED HERRINGS, SCALLOPED

Pour boiling water over them. Allow to stand 5 minutes. Drain. Bake 5 minutes. Flake one cup of cooked kipper in small pieces. Put alternate layers of cooked potatoes, Kipper and cheese in buttered dish. Pour 1 cup seasoned milk over the scallop. Cover with buttered crumbs. Bake until brown.



OLD-FASHIONED PUZZLES

(For answers, see page 126)

(I)

A man rows upstream for one hour, then jumps overboard and swims back downstream to his starting point, allowing his boat, meanwhile, to drift back. He can row twice as fast as he can swim. How much time could he have saved by rowing back instead of swimming?

(by Stewart T. Coffin,
Lincoln, Mass.)

II

A man goes to the lake with two containers. They hold exactly five quarts and nine quarts respectively. The containers are not calibrated; the man has no other measuring devices; he cannot make any marks on the containers. How can he bring back exactly three quarts of water?

(by James Powell, Beaufort, N.C.)

III

The lot of land outlined below can be divided into eight lots of the exact same size and exact same shape. Can you do it?

(by Barbara Hopson,
Wellesley, Mass.)



IV

What is the smallest number that, if divided by 2 has a remainder of 1; if divided by 3 has a remainder of 2; if divided by 4 has a remainder of 3; and so on for each number up to and including 10 with a remainder of 9?

(by Karen Huggins,
Schenectady, N.Y.)

V

William pays \$21 a week for room and board. He earns \$69 a week. He saves for a car. He borrows one half the cost from his landlord and will make his next payment in 8 weeks for one

half of his debt. In one half of that time, he will pay back the next one half until there is only one week until the next payment. Then he pays weekly until he is solvent. How many weeks did William pay? How much did the car cost?

(by Lewis Moore, Durango, Colo.)

VI

500 people went to a circus. Their total admission charge was \$500, with the men paying \$5 each, the ladies \$1 each and the children just one penny each. How many men, women and children were there?

(by Mrs. P. A. Sawyer,
Ellsworth, Me.)

VII

A farmer has five animals: a horse, a dog, a cat, a chicken and a cow. The sum of their weights is exactly one ton. If the horse makes up 45% of the total weight and the weight of the dog is nine times the total weight of the cat and the chicken, and the average weight of the latter two is 0.5% of the weight of the horse, how much does the cow weigh?

(by Ray Corson,
Colo. Springs, Colo.)

VIII

A General formed his army into one solid square but, in so doing, found he had 200 men left over. He then received a reinforcement of 1,000 men. By increasing two sides of the original square by 5 men, he found he lacked 25 men to complete the newly-formed square. How many men were in the original army?

(by J. Darrell Smith,
Pottsville, Penna.)

IX

There are two casks of a wine-water solution. The first cask contains 60% pure wine and the second cask contains a 25% pure wine content. How much must be taken from each cask and mixed together in order to make a new mixture of wine and water consisting of 7 gallons of water and 7 gallons of pure wine?

(by David Garfinkle,
Newton Centre, Mass.)

X

Draw a square. Divide it into nine equal squares by drawing two vertical and two horizontal lines. Now, using the numbers 1 through 9, arrange one number per square so that the sum of the digits across, down and diagonally equals 15. All numbers must be used only once.

(by Mrs. Edwin C. Tuttle,
Modena, New York)

CHARADES, REBUSES, CONUNDRUMS, ENIGMAS, etc.

(For answers, see page 126)

I

My first a cockney calls ahead,
My second I'll do before I'm dead.
Follow the cue and that's my
third.

My fourth's a tavern, or so I've
heard.

My fifth some day I hope to be.
My whole can sing the "Jubilee."
(by William F. Huberlie,
Rochester, N.Y.)

II

Name (1) the most religious
state in the United States, (2) the
state of exclamation, (3) the
maldenly state, (4) best state in
a flood, (5) numerical state, (6)
father of states, (7) state for the
untidy, (8) musical state, (9) ego-
tistical state, (10) highest state,
(11) best state to cure the sick
and (12) an unhealthy state.

(by Someone who didn't include
his name or address!)

III

What is in the beginning of all
Eternities, The end of time and
space, The beginning of every
end, and the end of every race?

(by Susan Isbey,
G.P.F., Mich.)

IV

(1) What letter in the alphabet
turns an animal into a carton?
(2) A body of water into a mam-
mal? (3) A garden tool into foot-
wear? (4) A water vessel into a
song bird? (5) A number into a
part of a skeleton?

(by Mrs. Albert Raskin,
Butternut, Wisconsin)

V

My first's in a fish but not in an
owl,
My second's in a shad but not in
a fowl,
My third's in a crab but not in a
quall,
My fourth's in a mackerel but not
in its tail.

(by Mrs. Rob't. Mitchell,
Roseburg, Ore.)

VI

I am a caller at every home
where you may meet,
For daily I perambulate along
each street.
Take one letter from me and still
you will see.

I'm the same as before, as I'll
always be.

Take two letters from me, or
three or four.

I'll still be the same as I was
before.

In fact, I can tell you that all
my letters you may take,
Yet of me nothing else can you
make.

(by Ralph Roberts, Louisville, Ky.)

VII

Punctuate the following sen-
tence so that it makes sense:
"Bill where Howard had had had
had had had had had had had
had had the teacher's approval."

(from "anonymous," Augusta, Me.)

VIII

(1) What is the difference be-
tween an undersized witch and a
deer trying to escape from a
hunter? (2) What is the differ-
ence between a crazy hare and a
counterfeit coin? (3) Why does a
bald-headed man have no use for
keys?

(by James R. Brown, Buffalo, N.Y.)

IX

My friend put 16 matches on a
table and asked me to pick up
one, two or three matches after
which he would pick up one, two
or three. We would alternate this
way but he would always work it
so that I would pick up the last
match on the table. How did he
do it?


(by Tyson V. Anderson,
Evanston, Ill.)



X

Every day, when Joe comes
home from work, and Pete is not
with him, Joe gets into the ele-
vator and goes to the 17th floor
and walks up to the 20th floor
where he lives. But if Pete is
with him, he goes all the way to
the 20th floor. Why is this?

(by James Benedict, Godfrey, Ill.)

XI

The  $\frac{1}{2}$ CC was R

 ING 2 the  up.

DEAR READER: We invite you to contribute to this and/or the opposite page. It is essential that all submissions be original, unpublished material. We will pay \$5 for each puzzle, riddle, enigma, etc. used. Closing date for the 1971 edition is April 1, 1970. Entries become the property of YANKEE, INC. and cannot be returned or acknowledged. Send to Puzzles, Yankee, Inc. Dublin, N.H. 03444.

AN HISTORY
OF THE
FOUNDER OF THE
"DABOLL ALMANAC"

*Purchased and continued here
by this Almanac in 1968.*

Master Nathan Daboll
and his
DYNASTY

by Carol W. Kimball

NUMBER ONE HUNDRED AND NINETY-EIGHT

THE NEW ENGLAND
ALMANAC
AND FARMERS' FRIEND
FOR THE YEAR OF OUR LORD CHRIST

1970

Being the Third after Bissextile or Leap Year

—AND THE—

One Hundred and Ninety-first of American Independence

Calculated for the Meridian of New London, Latitude
41° 21' N., Longitude 72° 05' W.

By Ernest C. Daboll
GROTON, CONN.

Containing besides the Astronomical Calculations, a
Variety of Matter both Useful and Entertaining

"Ocean or river, tiny brook or rill,
Each has its place in God's purpose to fill;
Though some are so great and the others so small
Yet in His wise plan He has work for them all!"

NEW LONDON:

Address All Correspondence to
THE OLD FARMER'S ALMANAC
DUBLIN, N. E. 6344, U.S.A.

*Above is the cover of the Daboll
Almanac as it would appear in 1970.*

By firesides bright with cheerful flame
The Almanac was hung.
And old and young in quiet hours
The Master's pages turned —
In times of sunshine or in showers
The weather's ways discerned.

Daboll's Almanac was a fixture in southern New England for 195 years. Folks wouldn't be without one: they looked at it 365 days of the year. They laughed if the sun was shining when the almanac promised rain. They said all Daboll did was write it hit or miss; he didn't know what weather was coming any more than they knew what was in the Dead Sea. But every fall they bought the new number and hung it in a handy place to consult daily about sunrise, full sea or the moon's southing.

This annual work, actually entitled *The New England Almanac and Farmer's Friend* for most of its existence, was written and published by the Daboll family for nearly two centuries. Except for the fictitious name of Edmund Freebetter on the issues, (1775-1791) only seven different names have appeared on its cover in all that time—all Dabolls: Nathan, Nathan, Jr., David, David, Jr., Loren, Caladen, and Ernest. The Freebetter pseudonym is thought by some to have been used by one Samuel Stearns.

Founder of this dynasty was "Master" Nathan Daboll, a man so skillful with numbers that the ignorant believed he possessed supernatural powers. "Master" was a title of respect, and also helped distinguish him from his namesake and successor "Squire" Nathan Daboll.

Three years before the Declaration of Independence the first of 195 numbers was published, *The Connecticut Almanack for the year of the Christian Aera 1773*, calculated for the meridian of New-London. The author signed himself "Nathan Daboll, Philomath," an ancient term for a lover of learning and student of mathematics, noting, "This is the first time of my appearing before you in this Astronomical Undertaking." In the days when clocks and calendars were scarce, sailors, merchants and farmers relied on his figures. He was only 22 when he completed calculations for the data he offered, an exceptional achievement because this young man was a self-taught mathematician.

He was born April 24, 1750 in Center Groton, Connecticut, near the town's first school and meeting house. When he studied with Rev. Jonathan Barber, Yale graduate and classical scholar, the parson

labeled him a very dull student. Uninterested in the classics and unable to secure a mathematics tutor, Nathan Daboll went ahead on his own with a borrowed copy of Cocker's Arithmetic. He was working for a cooper then and often figured out his sums on the smooth barrel heads. He struggled until he solved every problem, then completed Potter's Mathematics and persevered through Euclid and Archimedes, progressed to algebra, trigonometry and Whiston's Astronomy, and finished with Rowe's Fluxions, all without a teacher.

By 1772 he had mastered all known branches of mathematics and prepared the myriad calculations for his first almanac, that for 1773. Each year thereafter from 1775 to 1792 a new one appeared but with the exception of 1775 they were signed "Edmund Freebeter". It is possible he made the calculations for Freebeter but that the latter was its editor and publisher.

The **Connecticut Gazette** for October 18, 1792 advertised the forthcoming **New England Almanac and Gentlemen and Ladies' Diary** by Nathan Daboll, adding

To Mr. Daboll the Public have for many years been indebted for the correct calculations of Freebeter's Almanack.

If this statement was true, why did not Daboll's name appear, as calculator, in the Freebeter editions? In any event, thereafter the name of Daboll was never absent from the title page. Calculations were "fitted to the meridian of New-London, lat. 41°25' N. But will answer without any essential variation for either of the New England States." In southern Connecticut it was a best seller.

Local seafarers were impressed with the accurate reliable calculations. Young lads who wanted to learn navigation came for help, and although Master Daboll never went to sea he taught nautical science to dozens who did. His first pupils manned privateers out of New London in the Revolution.

In 1783 the Master left his native town for Plainfield Academy to teach astronomy and all branches of mathematics. After five years of teaching he returned to Center Groton, convinced that a new simpler text was needed for school mathematics. For a decade he worked on its preparation. His printer published the manuscript reluctantly and the author's royalty was only 1¢ a copy. But **Daboll's Complete Schoolmaster's Assistant** appeared in 1799, "being a plain and practical system of arithmetic adapted to the United States." It was a great success. The Master introduced a section on Federal coins and new concise rules for simple interest, "designed for the use of the counting house." Understanding the difficulties of the learner he also included lots of examples worked out for the pupil's benefit. Schools all over New England adopted this text; Daboll's book was even used in South Carolina. Well-worn copies still turn up in attics, names of several owners inked in front, the pages limp from use. The 41st edition appeared in 1821.

In 1805 Master Daboll moved his family and his navigation school to a house just east of his birthplace in Center Groton which still stands, now known as the Daboll homestead. Students met in the east wing of the new home. Many a successful captain studied there in his youth, attending as he found time and money. Instruction was pretty much on an individual basis, but the knowledge gained there brought many a ship safely home across the ocean. The school was an important asset in a maritime community, and in recognition Mystic Seaport has recreated this schoolroom above the Counting House, complete with globes, charts, master's desk and instruments.

Nearby New London harbor was a favorite anchorage for America's sailing navy. When the frigates **Constitution** and **President** wintered there in 1811, Commodore John Rodgers engaged Master Daboll to instruct his midshipmen in mathematics and nautical science. After the first classes in the cabin of the **President**, Master Daboll rented a room on Groton Bank and held daily sessions. Midshipman Fowle never completed the course; he was mortally wounded in a duel.

Daboll planned to write a series of works on navigation, but only one small volume was published. Long hours of close work by candle and firelight ruined his eyesight; in his last years he was totally blind. He died at the homestead in 1818.

No portrait of the Almanac's founder exists, but according to family tradition he was of medium height, inclined to be stout, with massive head and broad forehead. His busy life left little time for social affairs, but his forthright character earned him the respect of all his neighbors.

Master Daboll left a son well-trained to carry on his work. Born in 1780, Squire Nathan, a natural mathematician, also had the benefit of

Continued on page 107



LEYDEN.

Initially when certain men and women of Scrooby, England were persecuted for separating themselves from the Church of England, they as Pilgrims fled to Leyden, Holland. Upon the execution of John of Barneveldt there on May 13, 1619 they realised Holland was no more free than England and prepared to go to America. On July 20, 1620, after putting their plans into effect, they asked for the parting words of their beloved pastor, John Robinson. The next day they boarded the ship *Speedwell*, anchored where the canal from Leyden entered the Maas at Delfts-haven, and sailed for Southamp-ton, England.

After some misadventures and more farewells, these brave one-hundred souls departed, on board the *Mayflower*, September 16, 1620.

The *Mayflower* arrived at Provincetown (the tip of Cape Cod) on November 21st and on that day drew up one of the most significant documents of all time—the *Mayflower Compact*. The Compact was a constitution formed by the people—the beginning of popular government in this world.

They then explored the lands along the Massachusetts Bay side of Cape Cod and Clark's Island off Duxbury. On December 22nd, after holding the first Town Meeting in America to decide where to build their homes, the Pilgrims went on shore at Plymouth Rock. And there on the shore above the rock they settled.

The highlights which follow tell what has happened to these pilgrims and their descendants since.

- 1621 Kept Thauksgiving—in no danger of over-eating.
- 1622 Built a Meeting House.
- 1638 Started a College, and
- 1640 Set up a Printing Press.
- 1648 Hanged a Witch.
- 1649 Set his face against the unchristian custom of wearing loug hair, "a thing uncivil."
- 1651 Forbade wearing of gold and silver lace.
- 1680 Learned to use Forks at table; a new fashion.

Pilgrims'

1620=1970

Progress

- 1692 Scared by Witches again at Salem.
- 1704 Printed the first Newspaper, in Boston.
- 1705 Tasted Coffee, as a luxury, and at his own table.
- 1710 Began to sip Tea—very sparingly.
- 1711 Put a letter into his first Post Office.
- 1721 Was inoculated for the Small Pox. Began to sing by note on Sunday, thereby encountering much opposition.
- 1740 Manufactured tinned ware; started the first Tin Peddler on his travels.
- 1742 Faneuil Hall was built. The Cradle of Liberty was ready to be rocked.
- 1745 Built an Organ, but did not permit it to be played in the meeting house.
- 1755 Put up a Franklin Stove in his best room and tried one of the new Lightning Rods.
- 1760 Began to wear a collar to his shirt. When he could afford it, took his wife to meeting in a Chaise, instead of on a pillion.
- 1773 Watered his Tea in Boston harbor. Planted Liberty Trees.
- 1775 Showed Lord Perry how to march to "Yankee Doodle". Called at Ticonderoga, to take lodgings for the season. Sent General Putnam, under the command of several colonels, with a party to select a site for Bunker Hill Monument.
- 1776 Again declared himself free and independent.



Plymouth Rock

- 1780 Bought an "Umbrillo" and whenever he showed it was laughed at for his effeminacy.
- 1793 Invented the Cotton Gin and thereby trebled the value of Southern plantations.
- 1807 Saw a boat go by steam on the Hudson.
- 1815 Held a little Convention at Hartford, but didn't propose to dissolve the Union.
- 1819 Grown bolder, he crossed the Atlantic in a steamship.
- 1822 At last, learned how to make Hard Coal burn, and set a grate in his parlor.
- 1822 Had everyday shirts made without Ruffles.
- 1833 Rubbed his first Frietion Match, then called a "Lucifer," and afterwards "Loco Foco."
- 1835 Invented the Revolver, and set about supplying the world with it, as a peace-maker.
- 1835 Built a real Railroad, and rode on it.
- 1838 Adopted a new fashion of putting his letters in Envelopes.
- 1840 Sat for his Daguerreotype, and got a picture fearfully and wonderfully made. Began to blow himself up with "Camphene" and "Burning fluid," and continued the process for years, with changes of name of the active agent, down to and including "Non-Explosive Kerosene," and the atom bomb.
- 1844 Sent his first message by Electric Telegraph.
- 1847 Bought his wife a Sewing Machine—in the vain hope that somehow it would keep the buttons on his shirts. Began to receive advices from the "Spirit World."
- 1858 Celebrated the laying of the Ocean Cable, and sent a friendly message to John Bull. Next week began to doubt whether the cable has been laid at all.
- 1859 His rock given the Billing's Canopy.
- 1869 He got a railroad coast to coast.
- 1861-1865 Climbed the hill Diffi-

PLYMOUTH'S 350TH

The celebrating of the Pilgrims' landing at Plymouth will last from September 1970 through Thanksgiving, 1977.

A \$169,000 amphitheatre is planned as well as new campsites in the Myles Standish State Forest. The Mayflower II will visit ports in 12 of the 13 original colonies. A new Gristmill and restaurant is going up on the Town Brook.

And — all the other — attractions, historic and otherwise, will be going full blast whenever open during 1970.

Write Plymouth Chamber of Commerce, Plymouth, Mass. for full details.



The Pilgrims' Plymouth Homes

culty—relieved of pack after Jan. 1st, 1864; but lost GREAT-HEART, April 19, 1865.

- 1878 Got a telephone and a phonograph.
- 1879 Opened his first 5 & 10.
- 1880 Durned if they didn't move his Plymouth Rock.
- 1882 Restricted himself to one wife at a time.
- 1885 Got himself a Statue of Liberty.
- 1888 Had a blizzard to talk about and has been talking about it ever since.
- 1896 Made an auto in Detroit.
- 1898 Argued with Spain.
- 1902 Got him a radio.
- 1903 Motor biked New York to San Francisco.
- 1907 His 7 master sank.
- 1910 Founded a Boy Scout troop.
- 1913 Climbed McKinley.
- 1915 Created "Birth of a Nation."
- 1917 Saw a war begin.
- 1918 Saw it end.
- 1921 Got a new eupola over his rock.
- 1922 Dedicated the Lincoln Memorial.
- 1927 Flew across the ocean and telephoned across it too.
- 1927 Got wind of television.
- 1929 Sent his letters by air to California from New York.
- 1933 Decided to hoard gold.
- 1940 Swam length of the Mississippi River.
- 1941 Got took by surprise and was a long time getting over it.
- 1945 His great President died. Germany gave up. So did Japan.
- 1953 Made an hydrogen bomb.
- 1955 Discovered a polio vaccine.
- 1963 Shocked by the assassination of "J.F.K."
- 1964 Realized California had more people than does New York.
- 1965 Discontinued his two dollar bills.
- 1967 Took off his 20th Century Limited.
- 1968 Mourned R.F.K. and "M.L.K.Jr."—then orbited the moon.

SMALL CRAFT, GALE, STORM WARNINGS AND HURRICANE WARNINGS

DAYTIME SIGNALS

SMALL CRAFT



GALE



STORM



HURRICANE



NIGHT SIGNALS

SMALL CRAFT



GALE



STORM



HURRICANE



LEGEND:



-RED



-WHITE



-BLACK

■ AS OF MARCH 1, 1968, the Coast Guard began using new coastal storm warning terms as set forth by the United States Weather Bureau. Those presently in use are shown above.

Small Craft Warning indicates winds as high as 33 knots and conditions dangerous for small craft operations.

Gale Warning indicates winds from 34 to 47 knots.

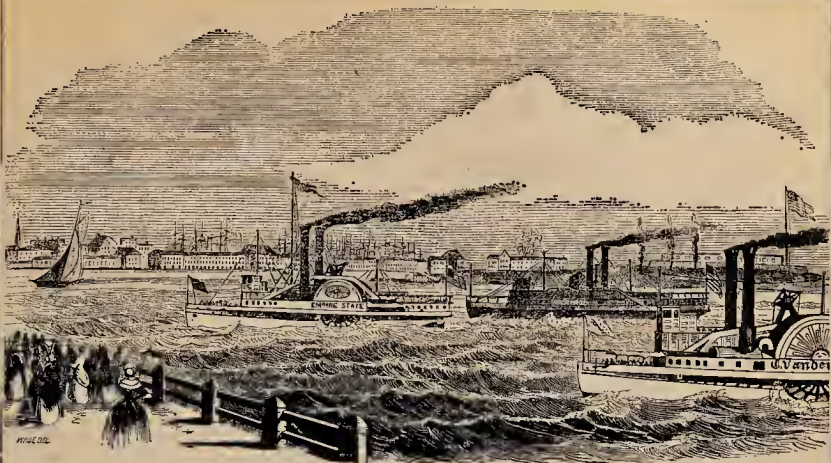
Storm Warning indicates winds of 48 knots or more — perhaps up to 63 knots.

Hurricane Warning indicates winds of 63 knots or over.

WE WONDER WHO OWNS THEM NOW!



BEAUTIFUL PRAIRIE LANDS were offered for sale all along the line of the Illinois Central Railroad in 1864 at \$8 to \$12 per acre in farms of 40, 80, 120, 160, 240 acres — and upward — with seven years to pay. If grandpa had put away just one of these 240-acre farms for you — how much, we wonder, would it be worth to you now?



NAUTICAL RULES OF THE ROAD

For those who desire more detail, order from Superintendent of Documents, U.S. Gov't. Printing Office, Washington, D.C. the following book: **AMERICAN PRACTICAL NAVIGATOR**, 1500 pages, Price \$7.00.

Unlighted red buoys, with even numbers, must be left to starboard returning to port (Red Right Return).

Black buoys, with odd numbers, must be left to port entering from seaward.

Buoys with black and white vertical stripes are placed in mid-channel and may be passed close to on either hand.

Buoys with red and black horizontal stripes indicate obstructions on either side of them. If the top band is red, go to port of the buoy; when the top band is black, leave it to starboard.

LIGHTED BUOYS

Red lights, whether steady or flashing, are on the starboard side of the channel only.

Green lights, steady or flashing, are only on the port side.

White lights are on mid-channel black and white striped buoys and will flash long and then short 6 or 8 times per minute.

RULES FOR VESSELS MEETING

STEAM VESSELS PASSING

One short blast: I intend to go to starboard.

Two short blasts: I intend to go to port.

Three short blasts: My engines are astern.

STEAM VESSELS MEETING AT RIGHT ANGLE

One short blast, the ship to starboard stops, waits and lets the port vessel go under her stern.

Two blasts means the opposite.

LIGHTED VESSELS PASSING AT NIGHT

1. Starboard light is Green. Port light is Red.

2. Vessels approaching head-on leave each to Port — or Red to Red

or

vessels approaching can go by each to Starboard — Green to Green.

3. But if a Red light appears to Starboard or a Green light to Port, stop and, if needed, go ASTERN until the danger of collision is averted.

SAILBOATS

Sailboats, as a rule, have right of way over all steam or water boats. Exceptions to this rule occur when sailboats are in places they obviously should not be, etc.

A sailboat on starboard tack has the right of way.

A sailboat approaching a buoy must leave room for another sailboat to round it if this other boat is close enough to have and ask for buoy room.

One sailboat overtaking another down wind may take the latter's wind but if passing to windward will have to luff if the overtaken boat causes it to do so.

Sailboats as well as motorboats are required to carry life preservers for each occupant. The latter must also be licensed and carry fire extinguishers.

Sailboat racing requires a highly professional knowledge of racing rules. These are by and large far more complicated than just general rules of the road.



STAGECOACH DISASTERS, 1831

Courtesy Rev. Charles Russell Peck

■ **LAST SUMMER WE WERE** in the barn garret, delving in an old trunk of our great-grandfather's, reading letters and back numbers of *The Old Farmer's Almanac*. Three letters appeared, smelly and dirty, but as alive with interest as when written in November, 1831. Two were from Warren Goddard to his friend Charles Russell; one from Charles Russell to his wife in Princeton. What were they about? The same subject: the overturn of stagecoaches.

Letter One: November 3, 1831, written from Lincoln, Massachusetts very soon after the accident, at half past six p.m. Mr. Goddard tells his friend:

"I hasten to inform you that the stage has been overturned at Sudbny and Concord line, and that Miss Everett, who got in at your store, had her collar-bone broken: but it is believed, is not dangerously hurt. Miss Mosier, who got in at Mr. Blake's, was more hurt. They are both about two miles above here toward Princeton. They had a physician immediately, and every attention was paid them. Otherwise we should not have left them. My hat saved my life. I escaped with a severe contusion over the eye, and Mrs. Goddard with a severe bruise on her head. The driver was so injured as to be now perfectly crazy. Please notify Mr. Everett and Mr. Blake immediately. I will probably write more particularly when I get to Boston. In the greatest haste, Yours, Warren Goddard."

Sure enough, he was as good as his word, writing a follow-up from Boston the next day, November 4. He even drew a vivid map to show the tricky place where the overturn took place. It was on "a rather sideling road," where a "chair-wagon was met, and, as it did not turn enough, to give the coach room, the stage had to turn to the left, between the ruts and the bank. When the leaders came near, and abreast of an old wagon which had been shipwrecked, they started and drew the right forward wheel of the coach into the rut which was not very deep nor at all dangerous to drive a chaise over; yet, by the sudden turn, put the coach on three wheels, the left wheel not touching the ground. The rapidity with which the frightened horses moved down hill, kept the stage on those three wheels: and, while it was drawn with great rapidity forward, it was also slipping sideways, until the right wheels reached the second rut, where the rut, bringing the wheels suddenly up, the stage was overturned with great violence. The front wheels came off, and when I got out not one of the six horses or the forward wheels were to be seen. The body of the stage was ruined. Every post but one was broken short, and the panels stove in.

"Mrs. Goddard and myself and Miss Everett were sitting on the back seat. We leaned to the left and by that means Miss E. did, probably, not receive so severe a blow as she would have, had not our weight been kept partly from pressing on her. As it was, however, she received a blow on her shoulder which either broke or dislocated the collar bone.

"I inquired last evening how they (the two ladies) did, and Mr. Field the agent, said that Miss E. was sitting up and doing quite well.

"Miss Mosier, who sat on the front seat, inside, was probably most hurt by the trampling upon her of the passengers who had been

sitting in the middle and front seats. For, her stomach and side, as Mr. Field said, were brokeu in, and although she was free from pain, she was lying in a doubtful situation."

After citing for Chas. Russell the ten books required for admission to Harvard for his son, the letter-writer concludes his epistle thus: "The newspaper account of our overturn is not correct. The females did not scream at all, neither did the driver jump off."

The third letter in the musty trunk was from Chas. Russell in Boston to his wife in Princeton village. Again about the overturn of a Concord coach. It is dated November 23, 1831—later, as we see, in the same late autumn month. He begins at once, after "My dear Wife. . . ."

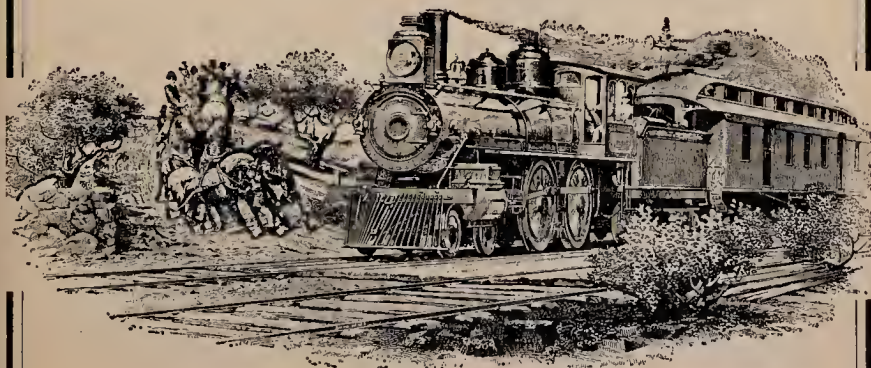
"I did not expect, on the morning of my departure from Princeton, when we so jocosely talked of my being overturned in the stage, that such indeed was to be the fact. I boarded the Keene stage at Lancaster, full to overflowing. Took a seat on the top of the coach behind the driver where I rode 'tolerable comfortable,' except getting wet with the rain and snow which continued to fall until we got to Joneses in Lincoln, when the clouds for a short time disappeared. There were nine inside, among whom were four females. On our way from Lincoln to Boston, some sixty rods above the Gore Place, where it was quite level, and we were going at a pretty fast trot, the hind axeltree gave way and the stage was immediately overturned. What but the interposition of a kind Providence could have prevented me from being dashed to pieces, I know not. All appeared to be astonished that I escaped with so little injury, as I must of course have fallen farther than any other person aboard.

"All the injury that I am now sensible of receiving, is in my left arm." (He then relates how he is treating the sprain.) "You may wish by this time to know what became of the rest of the passengers when the stage was overturned. I believe that the driver came partly on his feet. At any rate, when I got up, which was very quick, I found him upon his feet, and the horses standing entirely still. He immediately gave me the reins. With the other gentleman from outside, who was unhurt, he went to the relief of the passengers who were inside.

"Caution was given, and great care taken, by them, not to injure each other in getting out. Such a scene, for a few minutes I never had witnessed. The crash of the carriage: the groaning of the females: the rattling of the broken glass: the tearing open of the door: the crawling out of the passengers from underneath the top: the darkness, etc., all conspired to render it the greatest scene of confusion for the moment, that I ever beheld. But, when all came fairly out, and were sure that they had found their own legs and arms, and had time to examine themselves, none were so badly hurt as myself, which was truly remarkable. No blame could be attached to the driver."

He closes his account thus: "Permit me, however, before I close, to call upon you with me, devoutly and sincerely before I close, to praise Almighty God for my wonderful escape.

"P.S. I should have stated above that another coach was provided and we arrived in Boston at twelve o'clock (midnight)."





COCKS, COCKROWS, AND WEATHERCOCKS

W. A. Snow & Company of Boston, manufacturers of copper weathervanes (from whose catalog the illustration herewith is taken) in the 1870's furnished a bird such as this one (19"x24") with spire, letters, balls, and gilded with pure gold leaf for — guess what? — only \$20.00. The older birds such as the one in Newburyport seem to have much longer, and more flourishing tails.

Since ancient times, the cock has been the bird of light. This concept was inherited by the ancient Christians from Pagan times, and, as a complex symbol, the cock since early times has been placed atop church towers. The cock weather vane on Notre Dame Cathedral in Paris, for example, contains as do many of the old cock weathervanes, sacred religious relics. An interesting American one is above the 1755 Unitarian Church in Newburyport, Massachusetts as is that on the spire of the First Church in Cambridge, Massachusetts. The latter was made by Deacon Shem Drowne in 1721. He weighs 172 pounds, measures 5 ft. 4 in. long by 5 ft. 5 in. tall. This same Drowne made the famous grass-hopper vane on Boston's Faneuil Hall.

As the bird of light, the cock is the symbol of Christ and of the Resurrection. It also stands for the pastor who leads and watches over his parish—and for the position of the church in the community.

In the symbolism of the cock vane we also must recognize Peter's denial that he knew Christ. Christ foretold his denial and said Peter would deny him before cock-crow. Cock crow is commonly thought of as early dawn. However, cocks have been known down through the centuries to have crowing watches all through the night. As these happen at or about dark, midnight, at three, and at dawn the night is thus divided into "night watches". It is supposed that evil spirits walk in the night and it is the final cock-crow just before the dawn that disperses these evil spirits to their devilish habitats. Night is linked to our ideas of apparitions and its horrors are much brightened by the legendary stories of nurses and old women.

That the ancients paid attention to these cock-crow night watches we have many proofs. King Lear—"He begins at Curfew, and walks till the first cock". From Romeo and Juliet (who were carousing until three in the morning)—"The second cock has crow'd, the curfew bell has tolled, 'tis three o'clock."

The unseasonable crowing of cocks has always been reckoned ominous, particularly as it relates to wars. The cock is sacred to Mars—it presaged the victory of Themistocles as well as that of the Bociotians over the Lacedaemonians.

In still dark weather, which often happens at time of the Fall Solstice, cocks will often crow all day and all night. In fact, many will tell you their cocks do crow the entire night of September 8th each year—the night which celebrates the birth of Mary. They will also crow in almost any crepuscular light such as during an eclipse of the sun or in the semi-darkness of a thundercloud. In Papal times—of old as well as now—"In summitate crucis quae companario vulgo imponitur, galli galinacci effigi solet figura, quae ecclesiarum rectores vigilantiae ad-moneat."

TIDE CORRECTIONS

Many factors affect the time and height of the tides. The coastal configuration, the time of the moon's southing at the place, and the phase of the moon all contribute their share. This table of tidal corrections, which takes these several factors into account, is a sufficiently accurate guide to the times and heights of the high water at the places shown, inasmuch as high water persists with little change for an hour to either side of the tide's time. No figures are shown for most places on the Gulf of Mexico, since the method used in compiling this table does not apply there, where there is, in general, but one high tide a day and that of small range. For such places and elsewhere where precise accuracy is required, recourse should be made to the Tide Tables published annually by the Environmental Science Services Administration of the U.S. Government.

To obtain the time and height of high water at any place, apply the time difference below to the daily times of high water at Boston (Commonwealth Pier) as they appear on pages 22-44, and the height difference to the daily heights at Boston given on pages 23-45. Where the value in the "height difference" column is marked by an *, height at Boston should be multiplied by this ratio.

	Time Differ- ence h.m.	Height Differ- ence Ft.		Time Differ- ence h.m.	Height Differ- ence Ft.
MAINE			Plymouth	+0 05	0.0
Bar Harbor	-0 34	+0.9	Provincetown	+0 14	-0.4
Belfast	-0 20	+0.4	Revere Beach	-0 01	-0.3
Boothbay Harbor	-0 18	-0.8	Rockport	-0 08	-1.0
Chebeague Island	-0 16	-0.6	Salem	0 00	-0.5
Eastport	-0 28	+8.4	Scituate	-0 05	-0.7
Kennebunkport	+0 04	-1.0	Wareham	-3 09	-5.3
Machias	-0 28	+2.8	Wellfleet	+0 12	+0.5
Monhegan Island	-0 25	-0.8	West Falmouth	-3 10	-5.4
Old Orchard	0 00	-0.8	Westport Harbor	-3 22	-6.4
Portland	-0 12	-0.6	Woods Hole (Little Harbor)	-2 50	*0.2
Rockland	-0 28	+0.1	(Oceanographic Inst.)	-3 07	*0.2
Stonington	-0 30	+0.1			
York	-0 09	-1.0			
NEW HAMPSHIRE			RHODE ISLAND		
Hampton	+0 02	-1.3	Bristol	-3 24	-5.3
Portsmouth	+0 11	-1.5	Middletown	-3 24	-5.5
Rye Beach	-0 09	-0.9	Narragansett Pier	-3 42	-6.2
MASSACHUSETTS			Newport	-3 34	-5.9
Annisquam	-0 02	-1.1	Pt. Judith	-3 41	-6.3
Beverly Farms	0 00	-0.5	Providence	-3 20	-4.8
Boston	0 00	0.0	Watch Hill	-2 50	-6.8
Cape Cod Canal			CONNECTICUT		
East Entrance	-0 01	-0.8	Bridgeport	+0 01	-2.6
West Entrance	-2 16	-5.9	Madison	-0 22	-2.3
Chatham			New Haven	-0 11	-3.2
Outer Coast	+0 30	-2.8	New London	-1 54	-6.7
Inside	+1 54	*0.4	Norwalk	+0 01	-2.2
Cohasset	+0 02	-0.7	Old Lyme	-0 30	-6.2
Cotuit Highlands	+1 15	*0.3	(Highway Bridge)		
Dennisport	+1 01	*0.4	Stamford	+0 01	-2.2
Duxbury	+0 02	-0.3	Stonington	-2 27	-6.6
(Gurnet Pt.)			NEW YORK		
Fall River	-3 03	-5.0	Coney Island	-3 33	-4.9
Gloucester	-0 03	-0.8	Fire Island Lt.	-2 43	*0.1
Hingham	+0 07	0.0	Long Beach	-3 11	-5.7
Hull	+0 03	-0.2	Montauk Harbor	-2 19	-7.4
Hyannis Port	+1 01	*0.3	New York City	-2 43	-5.0
Magnolia	-0 02	-0.7	(Battery)		
(Manchester)			Oyster Bay	+0 04	-1.8
Marblehead	-0 02	-0.4	Port Chester	-0 09	-2.2
Marion	-3 22	-5.4	Pt. Washington	-0 01	-2.1
Monument Beach	-3 08	-5.4	Sag Harbor	-0 55	-6.8
Nahant	-0 01	-0.5	Southampton	-4 20	*0.2
Nantasket	+0 04	-0.1	(Shinnecock Inlet)		
Nantucket	+0 56	*0.3	Willetts Point	0 00	-2.3
Nauset Beach	+0 30	*0.6			
New Bedford	-3 24	-5.7	NEW JERSEY		
Newburyport	+0 19	-1.8	Ashury Park	-4 04	-5.3
Oak Bluffs	+0 30	*0.2	Atlantic City	-3 56	-5.5
Onset	-2 16	-5.9	Bayhead (Sea Girt)	-4 04	-5.3
(R.R. Bridge)					

Continued next Page

Beach Haven . . .	-1 43	*0.24	Fort Myers . . .	-7 45	*0.12
Cape May . . .	-3 28	-5.3	Fort Pierce Inlet . . .	-3 32	-6.9
Ocean City . . .	-3 06	-5.9	Jacksonville		
Sandy Hook . . .	-3 30	-5.0	Railroad Bridge . . .	-6 55	*0.10
Seaside Park . . .	-4 03	-5.4	Key West . . .	+11 24	-9.1
Wildwood . . .	-3 45	-5.5	Miami Harbor		
PENNSYLVANIA			Entrance . . .	-3 18	-7.0
Philadelphia . . .	+2 40	-3.5	St. Augustine . . .	-2 55	-4.9
DELAWARE			St. Petersburg . . .	-9 53	-7.6
Cape Henlopen . . .	-2 48	-5.3	Sarasota . . .	-11 31	*0.22
Wilmington . . .	+1 56	-3.8	Suwanee River		
MARYLAND			Entrance . . .	-9 01	-6.4
Annapolis . . .	+6 23	-8.5	CALIFORNIA		
Baltimore . . .	+7 59	-8.3	Carmel . . .	-0 22	*0.5
Cambridge . . .	+5 05	-7.8	Catalina Island . . .	-1 23	*0.5
Havre de Grace . . .	+11 21	-7.7	Crescent City . . .	-2 05	-4.1
Point No Point . . .	+2 28	-8.1	Eureka . . .	+1 35	-3.4
Prince Frederick . . .	+4 25	-8.5	Laguna Beach . . .	-1 38	*0.5
(Plum Point)			Long Beach . . .	-1 30	*0.5
Rehoboth Beach . . .	-3 37	-5.7	Los Angeles . . .	-1 33	-4.7
VIRGINIA			Mendocino . . .	+0 03	-4.4
Cape Charles . . .	-2 20	-7.0	Monterey . . .	-0 31	-4.9
Hampton Roads . . .	-2 02	-6.9	San Diego . . .	-1 41	-4.3
Norfolk . . .	-2 06	-6.6	San Francisco . . .	+0 45	-4.4
Virginia Beach . . .	-4 00	-6.0	Santa Barbara . . .	-1 10	*0.5
Yorktown . . .	-2 13	-7.0	Santa Cruz . . .	-0 34	-4.9
NORTH CAROLINA			Santa Rosa . . .	-0 03	-4.5
Beaufort . . .	-3 20	-6.9	OREGON		
Cape Fear . . .	-3 55	-5.0	Astoria . . .	+2 21	-1.5
Cape Lookout . . .	-4 28	-5.7	Empire . . .	+1 48	-3.4
Currituck . . .	-4 10	-5.8	North Bend		
Hatteras			Gold Beach . . .	+1 45	-3.4
Ocean . . .	-4 26	-6.0	(Rogue R. Entrance)		
Inlet . . .	-4 03	-7.4	Tillamook . . .	+2 28	*0.6
Kitty Hawk . . .	-4 14	-6.2	Toledo . . .	+2 05	-2.0
SOUTH CAROLINA			Yaquina . . .	+1 31	-1.9
Charleston . . .	-3 22	-4.3	WASHINGTON		
Folly Island . . .	-3 37	-4.3	Aberdeen . . .	+2 09	-0.1
Georgetown			Bellingham . . .	-6 18	-1.4
Sampit Point . . .	-1 55	*0.36	Cape Alava . . .	+1 19	*0.8
Pee Dee River			(Ozette)		
Bridge . . .	-1 48	*0.36	Cape Flaherty . . .	+1 26	*0.8
Hilton Head . . .	-3 22	-2.9	Columbia River		
Myrtle Beach . . .	-3 49	-4.4	Entrance (Ilwaco) +1 35	-2.2	
St. Helena			Everett . . .	-6 30	+1.1
Harbor Entrance	-3 15	-3.4	Lapush . . .	+1 12	*0.9
GEORGIA			Long Beach . . .	+1 07	*0.8
Jekyll Island . . .	-3 46	-2.9	Pacific Beach . . .	+1 10	*0.9
Saint Simon Island	-2 50	-2.9	Port Townsend . . .	-7 04	-1.6
Savannah Beach			Seattle . . .	-6 21	+1.3
River Entrance . . .	-3 14	-5.5	South Bend . . .	+2 08	-0.2
Tybee Light . . .	-3 22	-2.7	Tacoma . . .	-6 14	+1.8
FLORIDA			Westport (Ocean) . . .	+1 07	*0.9
Apalachicola . . .	-7 53	*0.18	BRITISH COLUMBIA		
Cape Kennedy . . .	-3 59	-6.0	Vancouver . . .	-5 25	+4.2
Clearwater . . .	-9 01	-6.4	ALASKA		
Daytona Beach . . .	-3 28	-5.3	Anchorage . . .	-4 58	+17.5
Everglades City . . .	+16 12	-7.3	Juneau . . .	+3 08	+6.1
Fort Lauderdale . . .	-2 50	-7.2	Kodiak . . .	+1 53	-1.7

Example: The figures for Full Sea in Columns 10 and 11 of the left hand Calendar pages 22-44 are the times of high tide at Commonwealth Pier in Boston Harbor. The heights of these tides are given on the right hand pages 23-45. The heights are reckoned from Mean Low Water; each day has a set of figures—upper for the morning—and lower for the evening. The conversion of the times of the tides at Boston to those of Miami is given by way of illustration.

Example: Apr. 18. See page 28, column 11, for time; page 29 for height.

BOSTON		MIAMI	
High Tide (from page 28) 9.00 A.M.E.S.T.		High tide (Boston)	9.00 A.M.E.S.T.
April 18		Correction above	-3.00
Height (from page 29) 8.8 feet		High tide (Miami)	6.00 A.M.E.S.T.
		Height (Miami)	(9.0 x 0.3)
			2.7 feet

GESTATION AND REPRODUCTION TABLE

	Proper age for first mating	Period of power of reproduction in years	No. of females for one male	Period of gestation and incubation		
				Shortest days	Mean days	Longest days
Mare.....	3 yrs.	10 to 12		325	336	352
Stallion.....	4 "	12 to 15	20 to 30			
Cow.....	18-24 mos.	10 to 14		235	282	300
Bull.....	12-18 "	10 to 12	30 to 40			
Ewe.....	18 "	6		145	147	152
Ram.....	12-14 "	7	35 to 45			
Sow.....	9 "	6		110	114	120
Boar.....	9 "	6	8 to 12			
She Goat.....	18 "	6		147	151	155
He Goat.....	18 "	5	20 to 30			
Ass.....	3 yrs.	10 to 12		356	367	378
Jack.....	4 "	12 to 15	20 to 30			
She Buffalo....	18-24 mos.	8		309	315	325
Bitch.....	16-18 "	8		58	63	67
Dog.....	12-16 "	8				
She Cat.....	12 mos.	6		58	60	64
He Cat.....	12 "	10	6 to 8			
Doe Rabbit....	6 "	5 to 6		25	30	35
Buck Rabbit....	6 "	5 to 6	30			
Cock.....	6 "	5 to 6	12 to 18			
Hen.....		5 to 6		19	21	24
Turkey.....				24	26	30
Duck.....				28	30	32
Goose.....				27	30	33
Pigeon.....				16	18	20
Pea Hen.....				25	28	30
Guinea Hen....				20	23	25
Swan.....				40	42	45
Hen or Duck's Eggs.....				22	30	34
Robin's Eggs...				13	16	19

REPRODUCTIVE CYCLE IN FARM ANIMALS

Courtesy F. N. Andrews — Purdue University

	Reoccurs if not Bred (Days)	Estrual Cycle incl. Heat Period (Days)		In Heat for		Usual Time of Ovulation
		Ave.	Range	Ave.	Range	
Mare	16	21	10-37	5-6 days	1-37 days	24-48 hours before end of estrus
Sow	19	21	18-24	2-3 days	1-5 days	Usually second day of estrus
Ewe	15	16	14-20	30 hours	20-42 hours	1 hour before end of estrus
Goat	19	20	12-25	36-48 hours	20-80 hours	Near end of estrus
Cow	20	19-20	16-24	16-20 hours	8-30 hours	14 hours after end of estrus
Bitch	180	24		21-28 days		
Cat	120			3-12 days		

PART THREE

Regional Forecasts

Thus far all the calculations (except for Page 17) in this Almanac have been for Boston. The following pages in this Part III will enable readers to adjust these calculations and weather forecasts for anywhere in the United States.

1. Boston — See Page 94.
2. Northern New England — See Page 95-97.
3. Southern New England — See Page 98.
4. East — Except New England — See Page 100-101.
5. Midwest — See Page 104-105.
6. Great Plains — See Page 110-111.
7. Pacific Northwest — See Page 110, 114.
8. South — See Page 118-119.

DIRECTIONS FOR USING REGIONAL FORECAST PAGES

Simple and easy directions for using the regional forecast pages which follow appear at the top of each of these pages. However, the following additional information which also applies to these pages should be carefully noted.

Weather Forecasts

The OFA has long been known for its "accurate" weather forecasts. In previous editions these have been made for Boston and New England only, with the proviso these could be used elsewhere by considering the weather as forecast would arrive one day earlier for each Time Zone west of Boston. The versified forecasts in italics next to the Farm Calendars on pages 23-45 are so calculated. In reading the regional forecasts listed above please remember it is impossible today to predict (successfully) the weather for more than a day or two in advance. Every known scientific source for making these 18-months-in-advance forecasts (we go to press in June) has been used. We suggest they will be more useful as weather trends than for the pinpointing of any particular day's weather.

Sun Dials

The column headed "Sun Fast" (pages 22-44) is of primary use to sun dial enthusiasts. The figures therein tell how fast on each day the time indicated by a *properly adjusted and graduated* sun dial will be of the time indicated by a clock. On April 11 sun dial time in Boston will be 15 min. (+15) FAST of Eastern Standard Time (see page 28). The time difference between clock and sun dial time in other cities (see pages 95-118) will be found by subtracting the value of Key Letter I for that city from the Sun Fast time for Boston (given on pages 22-44). The value of Key Letter I for Pittsburgh (see page 100) is +35 min., so sun dial time in Pittsburgh on April 11 will be 20 min. (+15 *minus* 35) SLOW of clock time.

Length of Day

The "Length of Day" for Boston (pages 22-44) tells how long the sun will be above the horizon. It is found by subtracting the time of sunrise from that of sunset for each locality. For other cities, see pages 95-118. For these, after you have determined sunrise and sunset times, subtract the one from the other and you have the length of day.

Moonrise and Moonset

For greater accuracy, include the Constant Additional Correction below.

Longitude of Place	58°-77°	77°-90°	90°-103°	103°-116°	116°-128°	128°-142°	142°-155°
Correction	m 0	m +1	m +2	m +3	m +4	m +5	m +6

BOSTON

Moonrise (Apr. 12) 9.18 A.M., E.S.T.
Key Letter B

Moonset 12.48 A.M., E.S.T.
Key Letter Q

PITTSBURGH

(Longitude 80° 00' W.)

Moonrise (Boston) 9.18 A.M.

Correction (N from page 100) +.42

Constant Additional Correction +.01

Moonrise (Pittsburgh) 10.01 A.M., E.S.T.

Moonset (Boston) 12.48 A.M.

Correction (Q from page 100) +.28

Constant Additional Correction +.01

Moonset (Pittsburgh) 1.17 A.M., E.S.T.

Moon's Place and Age

The moon's place and age is contained on the left-hand Calendar Pages (22-44). This information applies without correction throughout the United States.

Risings and Settings of the Planets

The times of rising and setting of naked-eye planets, with the exception of Mercury, are given for Boston on pages 46-47. To convert these times to those of other localities (pages 95-118), follow the same procedure as that given on those pages for finding the times of sunrise and sunset.

Dawn and Dark

The approximate times dawn will break and dark descend are found by applying the length of twilight taken from the table below to the times of sunrise and sunset at any specific place. The latitude of the place (see pages 95-118) determines the column of the table below from which the length of twilight is to be selected.

BOSTON (Latitude 42° 22' N.)		PITTSBURGH (Latitude 40° 26' N.)	
Sunrise (Apr. 11)	5.10 A.M.	Sunrise (see page 100)	5.48 A.M.
Length of Twilight (Col. 3 of table)	1.33	Length of Twilight (Col. 3 of table)	1.33
Dawn breaks	3.37 A.M., E.S.T.	Dawn breaks	4.15 A.M., E.S.T.
Sunset	6.21 P.M.	Sunset (see page 100)	6.54 P.M.
Length of Twilight	1.33	Length of Twilight	1.33
Dark descends	7.54 P.M., E.S.T.	Dark descends	8.27 P.M., E.S.T.

LENGTH OF TWILIGHT

Subtract from time of sunrise for dawn.

Add to time of sunset for dark.

Latitude	25°N	31°N	37°N	43°N	48°N
	to 30°N	to 36°N	to 42°N	to 47°N	to 49°N
	h m	h m	h m	h m	h m
Jan. 1 to Apr. 11	1 20	1 26	1 33	1 42	1 50
Apr. 11 to May 3	1 23	1 28	1 39	1 51	2 04
May 3 to May 15	1 26	1 34	1 47	2 02	2 22
May 15 to May 26	1 29	1 38	1 52	2 13	2 42
May 26 to July 23	1 32	1 43	1 59	2 27	—
July 23 to Aug. 4	1 29	1 38	1 52	2 13	2 42
Aug. 4 to Aug. 15	1 26	1 34	1 47	2 02	2 22
Aug. 15 to Sept. 6	1 23	1 28	1 39	1 51	2 04
Sept. 6 to Dec. 31	1 20	1 26	1 33	1 42	1 50

DETERMINATION OF EARTHQUAKES

Note, in this Almanac, on right hand pages, 23-45, the dates when the moon [☾^{runs}_{high}] or [☾^{rides}_{low}]. Beginning with the date of the high is the most likely five-day earthquake period in the northern hemisphere, with the low in the southern hemisphere. You will also find on these pages a moon on the Equator notation [☾^{on}_{Eq.}], twice each month. At this time, in both hemispheres, is a two-day quake period.

HOW THE OFA FORECASTS ARE MADE

All the astronomical forecasts—sunrise, sunset, planets, moonset, moonrise, et al—are made by astronomer Loring B. Andrews. The weather forecasts are made by "Abe Weatherwise" by means of a long-standing formula which goes back to 1792 when this Almanac was founded. In this formula are many factors: Sunspots, Long Range Cycles, Ocean Temperatures, Averages, etc. The factors are weighted in accord with the year intended for calculation—and based, as nearly as possible, on scientific facts and findings. It is well known, however, that science has yet to devise a way to forecast weather successfully, more than a day or two ahead.

1. BOSTON WEATHER FORECAST

Verification Base: U.S.W.B. at Blue Hill, Mass.

THE WINTER (NOV. 1969 - APR. 1970) will bring normal average monthly temperatures (34°), but precipitation including 64" snow will fall to 21" which is 3" below the 24" normal.

THE YEAR (JAN. - DEC. 1970) will be one degree cooler at 47° than the average monthly temperature normal of 48°. Precipitation will be down one inch to 47" from the normal 48 inches.

Nov. 1969: Daily temps. averaging at 43° will be 2° above the normal 41°. Precip. incl. 10" snow. will be 3" vs. the normal 4". 1-2, clear. 3-5, .3" prec. 2" snow. 6-7, clear. 8-9, .6" prec. 2" snow. 10-11, clear. 12, .6" prec. 2" snow. 13-14, clear. 15-16, .3" prec. 1" snow. 17, clear. 18-20, .3" rain. 21-22, clear. 23-24, .6" prec. 3" snow. 25-26, clear. 27-29, .3" prec. 1" snow. 30, clear.

Dec. 1969: Daily ave. temp. will be, at 32°, 2° above the normal 30°. Precip., incl. 9" snow, will be, at 3", 25% below the normal of 4". 1-3, clear. 4-5, .6" prec. 3" snow. 6-7, clear. 8-9, .3" rain. 10, clear. 11-12, .3" rain. 13-14, clear. 15-18, .6" prec. 2" snow. 19-21, clear. 22-26, 1.0" prec. 4" snow. 27-28, clear. 29-31, 2" rain.

Jan. 1970: Daily ave. temp. at 26° is normal. Precip. at 4", incl. 10" snow, is 25% above the normal 3". 1, clear. 2-4, .3" prec. 3" snow. 5, clear. 6-8, .6" rain. 9-10, clear. 11-15, .3" rain. 16, clear. 17-19, .6" prec. 3" snow. 20, clear. 21-23, .3" rain. 24, clear. 25-27, .6" prec. 4" snow. 28, clear. 29-31, .3" rain.

Feb. 1970: Ave. daily temp. of 25° is 1° below the normal 26°. Precip. of 2", incl. 14" snow, is 50% below the normal 4". 1, clear. 2-4, .1" rain. 5, clear. 6-7, .3" prec. 3" snow. 8, clear. 9-10, .3" rain. 11, clear. 12-18, .2" prec. 3" snow. 19, clear. 20-22, 1.0" prec. 8" snow. 23-25, clear. 26-28, 1" rain.

March 1970: Ave. daily temp. of 36° is 1° above the normal 35°. Precip. of 5", incl. 20" snow is 25% above the normal of 4". 1, clear. 2-4, 1.0" prec. 10" snow. 5, clear. 6-8, 1.0" prec. 4" snow. 9-12, clear. 13-15, 1.0" prec. 3" snow. 16-20, clear. 21-26, 1.5" prec. 3" snow. 27-31, clear.

April 1970: Ave. daily temp. of 43° is 3° below the normal 46°. Precip. of 5", incl. 1" snow is 25% above the normal 4". 1-3, clear. 4-6, 1.0" prec. 1" snow. 7-9, clear. 10-12, 1.0" rain. 13-15, clear. 16-18, 1.0" rain. 19, clear. 20-22, 1.0" rain. 23, clear. 24-26, 1.0" rain. 27-30, clear.

May 1970: Ave. daily temp. of 52° is 1° above the normal 51°. Precip. of 5" is 25% above the normal 4". 1-3, clear. 4-6, 1.0" rain.

7, clear. 8-11, 1.0" rain. 12-13, clear. 14-17, 1.0" rain. 18, clear. 19-21, 1.0" rain. 22, clear. 23-25, .5" rain. 26-27, clear. 28-30, .5" rain. 31, clear.

June 1970: Ave. daily temp. of 64° is 1° below the normal 65°. Precip. is at 1", only one-third of the normal 3". 1-2, clear. 3-5, .2" rain. 6, clear. 7-9, .1" rain. 10-13, clear. 14-15, .1" rain. 16-17, clear. 18-20, .3" rain. 21-22, clear. 23-25, .2" rain. 26, clear. 27-29, .1" rain. 30, clear.

July 1970: Ave. daily temp. of 69° is 2° below the normal 71°. Precip. at 2" is 50% below the normal 4". 1-4, .4" rain. 5, clear. 6-8, .4" rain. 9-13, clear. 14-20, .6" rain. 21-23, clear. 24-27, .4" rain. 28-29, clear. 30-31, .2" rain.

Aug. 1970: Ave. daily temp. of 68° is 1° below the normal 69°. Precip. at 3" is 25% below the normal 4". 1-2, clear. 3-5, .6" rain. 6-10, clear. 11-14, .6" rain. 15, clear. 16-18, .6" rain. 19-25, clear. 26-28, .2" rain. 29, clear. 30-31, .2" rain.

Sept. 1970: Ave. daily temp. of 64° is 1° above the normal 63°. Precip. of 3" is 25% below the 4" normal. 1-4, clear. 5-7, .6" rain. 8, clear. 9-11, .6" rain. 12, clear. 13-16, 1.8" rain. 17-20, clear. 21-25, 1.2" rain. 26-27, clear. 28-30, 1.2" rain.

Oct. 1970: Ave. daily temp. of 51° is 1° below the normal 52°. Precip. at 3" is 25% below the normal 4". 1-2, .6" rain. 3-4, clear. 5-8, .6" rain. 9-12, clear. 13-16, 1.2" rain. 17-22, clear. 23-26, .6" rain. 27-31, clear.

Nov. 1970: Ave. daily temp. of 40° is 1° below the normal 41°. Precip. of 5" is 25% above, incl. 3" snow, the normal 4". 1-2, .5" rain. 3-4, clear. 5-6, .5" rain. 7, clear. 8-9, .5" rain. 10, clear. 11-13, 1.5" rain. 14, clear. 15-17, .5" prec. 2" snow. 18, clear. 19-20, .5" rain. 21, clear. 22-24, .5" prec. 2" snow. 25, clear. 26-29, .5" rain. 30, clear.

Dec. 1970: Ave. daily temp. of 25° is 5° below the normal 30°. Precip. of 2", incl. 10" snow, is 50% below the normal 4". 1-3, clear. 4-6, .3" rain. 7-9, clear. 10-14, .8" rain. 15-16, clear. 17-18, .3" prec. 6" snow. 19-21, clear. 22-24, .3" prec. 2" snow. 25-27, clear. 28-30, .3" prec. 2" snow. 31, clear.

Table for Adjusting Sun, Moon, Planet Times on Pages 22-44, 46

2.-3. NEW ENGLAND (EXCEPT BOSTON)

The times of sunrise, sunset, moonrise, moonset (pages 22-44) and the planets (page 46) are for Boston only. The table below gives the corrections to be used for anywhere in New England except Boston. Note the Key Letter for any given day (pages 22-44, 46). Then find the column below in which that Key Letter falls. The figure in that column for the city you seek is the minutes to add or subtract for accuracy of within 5 min. for that city. Example: Jan. 12, sunrise (p. 22) is 7:12 A.M. Key Letter N. Key Letter N for Presque Isle (last col. below) shows +4. So sunrise at Presque Isle will be 7:16 A.M. If a city is not listed, interpolate between nearest two cities. (Further explanations appear on pages 92 and 93.)

City	State	Latitude	Time Used	Key Letters				
				A-D m	E-H m	I m	J-M m	N-O m
Bridgeport.....	Conn.	41 10	EST	+13	+10	+9	+7	+4
Hartford-New Britain.	Conn.	41 46	EST	+9	+7	+7	+6	+5
New Haven.....	Conn.	41 18	EST	+11	+9	+7	+6	+4
New London.....	Conn.	41 21	EST	+11	+9	+7	+6	+4
Norwalk-Stamford...	Conn.	41 03	EST	+14	+11	+10	+8	+5
Waterbury-Meriden...	Conn.	41 33	EST	+10	+8	+7	+6	+4
Augusta.....	Maine	44 19	EST	-12	-7	-5	-3	+2
Bangor.....	Maine	44 48	EST	-18	-12	-6	-6	0
Eastport.....	Maine	44 56	EST	-26	-19	-16	-13	-7
Ellsworth.....	Maine	44 30	EST	-19	-13	-16	-13	-2
Portland.....	Maine	43 39	EST	-8	-5	-3	-2	+2
Presque Isle.....	Maine	46 40	EST	-29	-17	-13	-7	+4
Brockton.....	Mass.	42 05	EST	+1	0	0	-1	-1
Fall River-N. Bedford.	Mass.	41 42	EST	+3	+1	0	0	-2
Lawrence-Lowell.....	Mass.	42 42	EST	-1	0	+1	+1	+2
Pittsfield.....	Mass.	42 27	EST	+8	+9	+9	+9	+9
Springfield-Holyoke...	Mass.	42 06	EST	+7	+6	+6	+6	+5
Worcester.....	Mass.	42 16	EST	+3	+3	+3	+3	+3
Berlin.....	N. H.	43 58	EST	-8	-3	0	+2	+8
Keene.....	N. H.	42 50	EST	+2	+1	+5	+6	+7
Manchester-Concord...	N. H.	42 59	EST	-1	+1	+2	+3	+4
Portsmouth.....	N. H.	43 10	EST	-4	-2	-1	0	+1
Providence.....	R. I.	41 50	EST	+3	+3	+1	+1	0
Brattleboro.....	Vt.	42 50	EST	+4	+5	+6	+7	+8
Burlington.....	Vt.	44 28	EST	+1	+6	+9	+11	+17
Rutland.....	Vt.	43 35	EST	+3	+6	+8	+9	+12
St. Johnsbury.....	Vt.	44 25	EST	-4	+1	+4	+6	+12

2. NORTHERN NEW ENGLAND WEATHER FORECAST

Verification Bases: Portland, Maine and Burlington, Vermont. However this forecast has general reference to Maine, New Hampshire, and Vermont and should be adjusted to higher altitudes for the ski resorts.

MAINE

Verification Base: Portland, Maine.

THE WINTER (NOV. 1969-APR. 1970) will be 1° warmer — i.e. 32° average monthly temperature vs. 31° normal. There will be 1" more precipitation (including 8" snow) — i.e. 25" total vs. 24" normal.

THE YEAR (JAN.-DEC. 1970) will bring normal 46° average monthly temperature, but precipitation will be up 1" — i.e. 42" total vs. 41" normal.

Nov. 1969: Daily ave. temp. will be 41° which is 2° above the normal 39°, but precip. will be down 25% — i.e. from 4" normal to 3" — incl. 8" of snow. 1-2, clear. 3-5, .3" prec. 2" snow. 6-7, clear. 8-9, .6" prec. 2" snow. 10-11, clear. 12, .6" prec. 1" snow. 13-14, clear. 15-16, .3" rain. 17, clear. 18-20, .3" rain. 21-22, clear. 23-24, .6" prec. 2" snow. 25-26, clear. 27-29, .3" prec. 1" snow. 30, clear.

Dec. 1969: Daily ave. temp. will be at 29°, 2° above normal. Total prec. even with 12" of snow, will be at 3", 25% below normal. 1-3, clear. 4-5, .6" prec. 3" snow. 6-7, clear. 8-9, .3" rain.

10, clear. 11-12, .3" rain. 13-14, clear. 15-18, .6" prec. 3" snow. 19-21, clear. 22-26, .6" prec. 4" snow. 27-28, clear. 29-31, .2" rain.

Jan. 1970: Daily ave. temp. at 25° is 2° above the normal 23°. Prec. incl. 20" snow, is at 5", 20% above the normal 4". 1, clear. 2-4, .5" prec. 6" snow. 5, clear. 6-8, 1.0" rain. 9-10, clear. 11-15, .5" rain. 16, clear. 17-19, 1.0" prec. 6" snow. 20, clear. 21-23, .5" rain. 24, clear. 25-27, 1.0" prec. 8" snow. 28, clear. 29-31, .5" rain.

Feb. 1970: Ave. daily temp. at 24° is 1° above the normal 23°.

Continued next page

Prec. at 3", incl. 15" snow, is 1" below the normal 4". 1, clear. 2-4, .2" rain. 5, clear. 6-7, .5" prec. 3" snow. 8, clear. 9-10, .4" rain. 11, clear. 12-18, .3" prec. 3" snow. 19, clear. 20-22, 1.4" prec. 9" snow. 23-25, clear. 26-28, .2" rain.

Mar. 1970: Ave. daily temp. of 33° is 1° above the normal 32°. Precip. of 4", incl. 20" snow, is normal. 1, clear. 2-4, 1.0" prec. 1" snow. 5, clear. 6-8", .4" prec. 4" snow. 9-12, clear. 13-15, 1.0" prec. 3" snow. 16-20, clear. 21-26, 1.6" prec. 3" snow. 27-31, clear.

Apr. 1970: Ave. daily temp. of 41° is 2° below the normal 43°. Precip. of 6", incl. 4" snow, double the normal 3". 1-3, clear. 4-6, 1.2" prec. 1" snow. 7-9, clear. 10-12, 1.2" rain. 13-15, clear. 16-18, 1.2" rain. 19, clear. 20-22, 1.2" rain. 23, clear. 24-26, 1.2" rain. 27-30, clear.

May 1970: Ave. daily temp. of 51° is 2° below the normal 53°. Precip. 4" is 30% above the normal 3". 1-3, clear. 4-6, .8" rain. 7, clear. 8-11, .4" rain. 12-13, clear. 14-17, .8" rain. 18, clear. 19-21, .8" rain. 22, clear. 23-25, .4" rain. 26-27, clear. 28-30, .8" rain. 31, clear.

June 1970: Ave. daily temp. of 63° is 1° above the normal 62°. Precip. at 1" is one-third the normal 3". 1-2, clear. 3-5, .2" rain. 6, clear. 7-9, .1" rain. 10-13, clear. 14-15, .1" rain. 16-17, clear. 18-20, .3" rain. 21-22, clear. 23-25, .2" rain. 26, clear. 27-29, .1" rain. 30, clear.

July 1970: Ave. daily temp. of 68° is normal. Precip. of 2" is 30% below the normal of 3". 1-4, .4"

rain. 5, clear. 6-8, .4" rain. 9-13, clear. 14-20, .6" rain. 21-23, clear. 24-27, .4" rain. 28-29, clear. 30-31, .2" rain.

Aug. 1970: Ave. daily temp. of 66° is 1° below the normal 67°. However, precip. of 6" is double the normal 3". 1-2, clear. 3-5, .6" rain. 6-10, clear. 11-14, .6" rain. 15, clear. 16-18, .6" rain. 19-25, clear. 26-28, .6" rain. 29, clear. 30-31, .2" rain.

Sept. 1970: Ave. daily temp. of 63° is 3° above the normal 60°. Precip. at 3" is normal. 1-4, clear. 5-7, .6" rain. 8, clear. 9-11, .6" rain. 12, clear. 13-16, 1.8" rain. 17-20, clear. 21-25, 1.2" rain. 26-27, clear. 28-30, 1.2" rain.

Oct. 1970: Ave. daily temp. of 50° is 1° above the normal 49°. Precip. at 2" is one-third below the normal 3". 1-2, .4" rain. 3-4, clear. 5-8, .4" rain. 9-12, clear. 13-16, .8" rain. 17-22, clear. 23-26, .4" rain. 27-31, clear.

Nov. 1970: Ave. daily temp. of 39° is normal as is the precip. of 4", incl. 1" snow. 1-2, .4" rain. 3-4, clear. 5-9, .8" rain. 10, clear. 11-13, .6" rain. 14, clear. 15-17, .4" prec. 1" snow. 18, clear. 19-20, .4" rain. 21, clear. 22-24, .4" rain. 25, clear. 26-29, .4" rain. 30, clear.

Dec. 1970: Ave. daily temp. of 25° is 2° below the normal 27°. Precip. of 2" incl. 12" snow, is 50% below the normal 4". 1-3, clear. 4-6, .3" rain. 7-9, clear. 10-14, .8" rain. 15-16, clear. 17-18, .3" prec. 6" snow. 19-21, clear. 22-24, .3" prec. 4" snow. 25-27, clear. 28-30, .3" prec. 2" snow. 31, clear.

VERMONT

Verification Base: Burlington, Vermont.

THE WINTER (NOV. 1969-APRIL 1970) will be normal—28°. Average monthly temperature, but precipitation will be down 1" —i.e. to 12" (incl. 73" snow) from the 13" normal total.

THE YEAR (JAN.-DEC. 1970) will be normal—44°. Average monthly temperature and the precipitation will be up 2" —i.e. to 34" total vs. the normal 32".

Nov. 1969: Daily ave. temp. will be normal (37°), but precipitation is way low at 1", incl. 6" snow, vs. the normal 3". 1-2, clear. 3-5, .1" prec. 1" snow. 6-7, clear. 8-9, .2" rain. 10-11, clear. 12, .2" prec. 1" snow. 13-14, clear. 15-16, .1" prec. 1" snow. 17-18, clear. 19-20, .1" rain. 21-22, clear. 23-24, .2" prec. 2" snow. 25-26, clear. 27-29, .1" prec. 1" snow. 30, clear.

Dec. 1969: Daily ave. temp. at 25°

is 2° above normal of 23°. Precip. incl. 10" snow will be normal (2"). 1-3, clear. 4-5, .4" prec. 2" snow. 6-7, clear. 8-9, .2" rain. 10, clear. 11-12, .2" prec. 2" snow. 13-14, clear. 15-18, .4" prec. 2" snow. 19-21, clear. 22-26, .6" prec. 4" snow. 27-28, clear. 29-31, .2" rain.

Jan. 1970: Daily ave. temp. at 16° is 2° below the 18° normal. Precip. incl. 22" snow is, at 2", normal. 1, clear. 2-4, .2" prec. 6"

snow. 5, clear. 6-8, .4" rain. 9-10, clear. 11-15, .3" rain. 16, clear. 17-19, .6" prec. 3" snow. 20, clear. 21-23, .3" rain. 24, clear. 25-27, .6" prec. 4" snow. 28, clear. 29-31, .3" rain.

Feb. 1970: Ave. daily temp. at 18° is 1° below the normal 19°. Precip. at 1", incl. 17" snow is 50% below the normal 2". 1, clear. 2-4, .1" rain. 5, clear. 6-7, .2" prec. 3" snow. 8, clear. 9-10, .1" rain. 11, clear. 12-18, .1" prec. 3" snow. 19, clear. 20-22, .4" prec. 10" snow. 23-25, clear. 26-28, .1" prec. 1" snow.

Mar. 1970: Ave. daily temp. of 30° is 1° above the normal 29°. Prec. of 4", incl. 10" snow is double the normal 2". 1, clear. 2-4, 1.0" prec. 5" snow. 5, clear. 6-8, .4" prec. 2" snow. 9-12, clear. 13-15, 1.0" prec. 2" snow. 16-20, clear. 21-26, 1.6" prec. 2" snow. 27-31, clear.

Apr. 1970: Ave. daily temp. of 41° is 2° below the normal of 43°. Prec. of 2", incl. 8" snow is normal. 1-3, clear. 4-6, .4" prec. 2" snow. 7-9, clear. 10-12, .4" prec. 2" snow. 13-15, clear. 16-18, .4" prec. 2" snow. 19, clear. 20-22, .4" prec. 2" snow. 23, clear. 24-26, .4" rain. 27-30, clear.

May 1970: Ave. daily temp. of 51° is 2° below the normal 53°. Precip. of 4" is 30% above the normal 3". 1-3, clear. 4-6, .8" rain. 7, clear. 8-11, .4" rain. 12-13, clear. 14-17, .8" rain. 18, clear. 19-21, .8" rain. 22, clear. 23-25, .4" rain. 26-27, clear. 28-30, .8" rain. 31, clear.

June 1970: Ave. daily temp. of 68° is 3° above normal 65°. Precip. of 4" is 30% above the normal 3". 1-2, clear. 3-5, .8" rain. 6, clear. 7-9, .4" rain. 10-13, clear. 14-15, .4" rain. 16-17, clear. 18-20, 1.2" rain. 21-22, clear. 23-25, .8" rain. 26, clear. 27-29, .4" rain. 30, clear.

July 1970: Ave. daily temp. of 68° is 2° below the normal 70°. Precip. at 5" is 25% above the normal 4". 1-4, 1.0" rain. 5, clear. 6-8, 1.0" rain. 9-13, clear. 14-20, 1.5" rain. 21-23, clear. 24-27, 1.0" rain. 28-29, clear. 30, .5" rain. 31, clear.

Aug. 1970: Ave. daily temp. of 68° is 1° above the normal 67°. Precip. of 3" is normal. 1-2, clear. 3-5, .6" rain. 6-10, clear. 11-14, .6" rain. 15, clear. 16-18, .6" rain. 19-25, clear. 26-28, .2" rain. 29, clear. 30-31, .2" rain.

Sept. 1970: Ave. daily temp. of 63° is 3° above normal 60°. Precip. at 3" is normal. 1-4, clear. 5-7, .6" rain. 8, clear. 9-11, .6" rain. 12, clear. 13-16, 1.8" rain. 17-20, clear. 21-25, 1.2" rain. 26-27, clear. 28-30, 1.2" rain.

Oct. 1970: Ave. daily temp. of 48° is 1° below the normal 49°. Precip. at 3" is normal. 1-2, .5" rain. 3-4, clear. 5-8, .5" rain. 9-12, clear. 13-16, 1.5" rain. 17-22, clear. 23-26, .5" rain. 27-31, clear.

Nov. 1970: Ave. daily temp. of 35° is 2° below the normal 37°. Precip. of 2" incl. 3" snow is 30% below the normal 3". 1-2, .2" rain. 3-4, clear. 5-9, .4" rain. 10, clear. 11-13, .6" rain. 14, clear. 15-17, .2" prec. 1" snow. 18, clear. 19-20, .2" prec. 1" snow. 21, clear. 22-24, .2" rain. 25, clear. 26-29, .2" prec. 1" snow. 30, clear.

Dec. 1970: Ave. daily temp. of 19° is 4° below the normal 23°. Prec. of 1", incl. 8" snow, is 50% below the normal 2". 1-3, clear. 4-6, .1" rain. 7-9, clear. 10-14, .5" rain. 15-16, clear. 17-18, .2" prec. 4" snow. 19-21, clear. 22-24, .1" prec. 2" snow. 25-27, clear. 28-30, .1" prec. 2" snow. 31, clear.

MIDWEST WEATHER

Continued from page 105

Aug. 1970: Ave. daily temp. of 73° is 1° above the normal 72°. Precip. at 3" is normal. 1-2, clear. 3-5, .2" rain. 6-10, clear. 11-14, 2" rain. 15, clear. 16-18, .2" rain. 19-25, clear. 26-28, .2" rain. 29, clear. 30-31, .2" rain.

Sept. 1970: Ave. daily temp. of 70° is 4° above the normal 66°. Precip. at 2" is one-third below the normal 3". 1-4, clear. 5-7, .4" rain. 8, clear. 9-11, .4" rain. 12, clear. 13-16, 1.2" rain. 17-20, clear. 21-25, .8" rain. 26-27, clear. 28-30, .8" rain.

Oct. 1970: Ave. daily temp. of 54° is normal. Precip. of 3" is 50% above the normal 2". 1-2, .5" rain. 3-4, clear. 5-8, .5" rain. 9-12, clear. 13-16, 1.5" rain. 17-22, clear. 23-26, .5" rain. 27-31, clear.

Nov. 1970: Ave. daily temp. of 43° is 3° above the normal 40°. Precip. of 2", incl. 2" snow, is normal. 1-2, .2" rain. 3-4, clear. 5-9, .4" rain. 10, clear. 11-13, .6" rain. 14, clear. 15-17, .2" prec. 1" snow. 18, clear. 19-20, .2" prec. 1" snow. 21, clear. 22-24, .2" rain. 25, clear. 26-29, .2" rain. 30, clear.

Dec. 1970: Ave. daily temp. of 31° is 2° above the normal 29°. Precip. of 1", incl. 3" snow, is 50% below the normal 2". 1-3, clear. 4-6, .1" rain. 7-9, clear. 10-14, .5" rain. 15-16, clear. 17-18, .2" prec. 1" snow. 19-21, clear. 22-24, .1" prec. 1" snow. 25-27, clear. 28-30, .1" prec. 1" snow. 31, clear.

3. SOUTHERN NEW ENGLAND WEATHER FORECAST

Verification Base: Providence, R. I. However, this forecast is meant to cover Cape Cod, most of Connecticut, and New York City — and even down to Washington, D. C. This area is affected by northeasterly storms, and some from the Carolinas or the Ohio "channel."

THE WINTER (NOV. 1969-APR. 1970) will be at 38°, 1° warmer than the usual average monthly temperature of 37°. Precipitation, including 38" snow, will be, at 23" total, normal.

THE YEAR (JAN.-DEC. 1970) will run at 51°, 1° warmer than the average monthly temperature of 50°. Precipitation will be, at 42", normal.

Nov. 1969: Daily temp. will ave. 46°, 3° warmer than the normal 43° and precip. will be at 3", down 25% from the normal 4". 1-2, clear. 3-5, .5" rain. 6-7, clear. 8-9, 1.0" rain. 10-11, clear. 12, 1.0" rain. 13-14, clear. 15-16, .5" rain. 17-18, clear. 19-20, .5" rain. 21-22, clear. 23-24, 1.0" rain. 25-26, clear. 27-29, .5" rain. 30, clear.

Dec. 1969: Daily ave. temp. at 35° is 2° above the normal 33°. Precip. at 3", incl. 7" snow, will be 25% lower than the normal 4". 1-3, clear. 4-5, .6" prec. 2" snow. 6-7, clear. 8-9, .3" rain. 10, clear. 11-12, .3" rain. 13-14, clear. 15-18, .6" prec. 1" snow. 19-21, clear. 22-25, 1.0" prec. 4" snow. 26-27, clear. 28-31, .2" rain.

Jan. 1970: Daily ave. temp. at 33° is 1° above the normal 32°. Precip. incl. 5" snow, is, at 3", 25% below the normal 4". 1, clear. 2-4, .3" prec. 1" snow. 5, clear. 6-8, .6" rain. 9-10, clear. 11-15, .3" rain. 16, clear. 17-19, .6" prec. 2" snow. 20, clear. 21-23, .3" rain. 24, clear. 25-27, .6" prec. 2" snow. 28, clear. 29-31, .3" rain.

Feb. 1970: Daily ave. temp. at 29° is normal. Precip. at 2" is 30% below the normal of 3" even with 10" of snow. 1, clear. 2-4, .1" rain. 5, clear. 6-7, .3" prec. 2" snow. 8, clear. 9-10, .3" rain. 11, clear. 12-18, .2" prec. 2" snow. 19, clear. 20-22, 1.0" prec. 6" snow. 23-25, clear. 26-28, .1" rain.

Mar. 1970: Daily ave. temp. of 39° is 1° above the normal 38°. Precip. of 5" is, incl. 15" snow. 25% above the normal 4". 1, clear. 2-4, 1.0" prec. 5" snow. 5, clear. 6-8, 1.0" prec. 4" snow. 9-12, clear. 13-15, 1.0" prec. 3" snow. 16-20, clear. 21-26, 1.5" prec. 3" snow. 27-31, clear.

Apr. 1970: Ave. daily temp. of 46° is 2° below the normal 48°. Precip. of 5" incl. 1" snow, is 25% above the normal 4". 1-3, clear. 4-6, 1.0" prec. 1" snow. 7-9, clear. 10-12, 1.0" rain. 13-15, clear. 16-18, 1.0" rain. 19, clear. 20-22, 1.0" rain. 23, clear. 24-26, 1.0" rain. 27-30, clear.

May 1970: Ave. daily temp. of 56° is 2° below the normal of 58°. Precip. of 4" is 30% above the normal 3". 1-3, clear. 4-6, .8" rain. 7, clear. 8-11, .4" rain.

12-13, clear. 14-17, .8" rain. 18, clear. 19-21, .8" rain. 22, clear. 23-25, .4" rain. 26-27, clear. 28-30, .8" rain. 31, clear.

June 1970: Ave. daily temp. of 67° is normal. The precip. of 1", however, is one-third of the normal 3". 1-2, clear. 3-5, .2" rain. 6, clear. 7-9, .1" rain. 10-13, clear. 14-15, .1" rain. 16-17, clear. 18-20, .3" rain. 21-22, clear. 23-25, .2" rain. 26, clear. 27-29, .1" rain. 30, clear.

July 1970: Ave. daily temp. of 72° is 1° below the normal 73°. Precip. at 3" is normal. 1-4, .6" rain. 5, clear. 6-8, .6" rain. 9-13, clear. 14-20, .9" rain. 21-23, clear. 24-27, .6" rain. 28-29, clear. 30, .3" rain.

Aug. 1970: Ave. daily temp. of 70° is 1° below the normal 71°. Precip. at 4" is normal. 1-2, clear. 3-5, 1.2" rain. 6-10, clear. 11-14, 1.2" rain. 15, clear. 16-18, 1.2" rain. 19-25, clear. 26-28, 1.2" rain. 29, clear. 30-31, 1.2" rain.

Sept. 1970: Ave. daily temp. of 70° is 1° below the normal 71°. Precip. at 4" is normal. 1-4, clear. 5-7, .8" rain. 8, clear. 9-11, .8" rain. 12, clear. 13-16, 2.4" rain (edge of tropical storm here, the Cape and Nantucket). 17-20, clear. 21-25, 1.6" rain. 26-27, clear. 28-30, 1.6" rain.

Oct. 1970: Ave. daily temp. of 54° is normal. Precip. of 4" is one-third above the normal 3". 1-2, .8" rain. 3-4, clear. 5-8, .8" rain. 9-12, clear. 13-16, 1.6" rain. 17-22, clear. 23-26, .8" rain. 27-31, clear.

Nov. 1970: Ave. daily temp. of 43° is normal. Precip. of 5", incl. 3" snow, is 25% above the normal 4". 1-2, .5" rain. 3-4, clear. 5-6, .5" rain. 7, clear. 8-9, .5" rain. 10, clear. 11-13, 1.5" rain. 14, clear. 15-17, .5" prec. .2" snow. 18, clear. 19-20, .5" rain. 21, clear. 22-24, .5" prec. 2" snow. 25, clear. 26-29, .5" rain. 30, clear.

Dec. 1970: Ave. daily temp. of 29° is 4° below the normal 33°. Precip. of 2" incl. 12" snow, is 50% below the normal 4". 1-3, clear. 4-6, .3" rain. 7-9, clear. 10-14, .8" rain. 15-16, clear. 17-18, .3" prec. 6" snow. 19-21, clear. 22-24, .3" prec. 4" snow. 25-27, clear. 28-30, .3" prec. 2" snow. 31, clear.

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4. EASTERN STATES (EXCEPT NEW ENGLAND)

The times of sunrise, sunset, moonrise, moonset (pages 22-44) and the planets (page 46) are for Boston only. The table below gives the corrections to be used for cities in the Eastern States, except New England. Note the Key Letter for any given day (pages 22-44, 46). Then find the column below in which that Key Letter falls. The figure in that column for the city you seek is the minutes to add or subtract for accuracy of within 5 min. for that city. Example: Jan. 12, sunrise (p. 22) is 7:12 A.M., Key Letter N. Key Letter N for New York City (last col. below) shows +6. So sunrise New York City would be 7:18 A.M. If a city is not listed, interpolate between nearest two cities. (Further explanations appear on pages 92 and 93.)

City	State	Latitude	Time Used	Key Letters				
				A-D m	E-H m	I m	J-M m	N-O m
Wilmington.....	Del.	39 45	EST	+27	+21	+18	+15	+ 9
Washington.....	D. C.	38 54	EST	+35	+28	+24	+20	+12
Baltimore.....	Md.	39 17	EST	+32	+26	+22	+19	+12
Hagerstown.....	Md.	39 40	EST	+36	+30	+27	+24	+17
Salisbury.....	Md.	38 25	EST	+31	+22	+18	+14	+ 5
Alhany.....	N. Y.	42 39	EST	+10	+10	+11	+11	+12
Binghamton.....	N. Y.	42 06	EST	+20	+20	+19	+19	+18
Buffalo.....	N. Y.	43 00	EST	+26	+29	+31	+33	+37
New York.....	N. Y.	40 45	EST	+17	+13	+12	+10	+ 6
Ogdensburg.....	N. Y.	44 45	EST	+ 8	+15	+18	+21	+27
Syracuse.....	N. Y.	43 03	EST	+18	+20	+20	+21	+23
Atlantic City.....	N. J.	39 22	EST	+24	+17	+13	+10	+ 3
Camden.....	N. J.	39 57	EST	+24	+19	+16	+13	+ 8
Cape May.....	N. J.	39 05	EST	+27	+19	+15	+12	+ 4
Newark-Irvington- E. Orange.....	N. J.	40 44	EST	+18	+14	+12	+11	+ 7
Paterson.....	N. J.	40 55	EST	+17	+14	+12	+11	+ 7
Trenton.....	N. J.	40 13	EST	+21	+17	+15	+12	+ 7
Allentown-Bethlehem.	Pa.	40 36	EST	+23	+19	+17	+15	+11
Erie.....	Pa.	42 07	EST	+37	+36	+36	+36	+35
Harrisburg.....	Pa.	40 16	EST	+30	+26	+23	+21	+16
Lancaster.....	Pa.	40 02	EST	+29	+24	+21	+18	+13
Philadelphia-Chester..	Pa.	39 57	EST	+25	+20	+17	+14	+ 9
Pittsburgh- McKeesport.....	Pa.	40 26	EST	+42	+38	+35	+33	+28
Reading.....	Pa.	40 20	EST	+26	+22	+19	+17	+12
Scranton-Wilkes Barre	Pa.	41 25	EST	+23	+20	+19	+18	+15
York.....	Pa.	39 58	EST	+31	+25	+23	+20	+14
Charlottesville.....	Va.	38 02	EST	+43	+34	+30	+25	+16
Danville.....	Va.	36 31	EST	+49	+38	+32	+26	+15
Norfolk.....	Va.	36 51	EST	+37	+27	+21	+15	+ 5
Richmond.....	Va.	37 32	EST	+40	+31	+25	+20	+11
Roanoke.....	Va.	37 16	EST	+51	+41	+35	+30	+20
Winchester.....	Va.	39 13	EST	+38	+32	+28	+25	+19
Charleston.....	W. Va.	38 21	EST	+54	+46	+42	+38	+30
Parkersburg.....	W. Va.	39 21	EST	+52	+45	+42	+38	+32

FULL MOON DAYS

	1969	1970	1971	1972	1973		1969	1970	1971	1972	1973
Jan.	3	22	11	30	18	July	28	18	8	26	15
Feb.	2	21	10	28	17	Aug.	27	16	6	24	13
Mar.	4	22	11	29	18	Sept.	25	15	4	22	12
Apr.	2	21	10	28	17	Oct.	25	14	4	22	11
May	2-31	20	10	27	16	Nov.	23	13	2	20	10
June	29	19	8	26	15	Dec.	23	12	2-31	20	9

NODES OF THE MOON

On the right hand calendar pages 23-45, you will note (3 or 4 times a month) the symbols ☾ at ♀ or ☾ at ♁. The former means the moon is in its ascending node, the latter—its descending node. Many farmers plant, for more rapid growth, during the former—and during the latter, when things don't grow as well, cut brush, prune, etc.

MOON "RUNS HIGH"

On the right hand calendar pages, 23-45, you will find (twice a month) the symbols ☾^{runs} high or ☾^{runs} low. The former means the moon is high above the horizon—the latter, low on the horizon. Abraham Lincoln used the latter in the OFA of 1857 to prove the innocence of his client, Armstrong.

4. EASTERN STATES (EXCEPT NEW ENGLAND) WEATHER FORECAST

Verification Base: Pittsburgh, Pa. However, this forecast goes for upper New York, northern Pennsylvania, Ohio, northern New Jersey, and overlaps with that of southern New England for Washington, D. C., Virginia, Delaware, and West Virginia when the storms are from the west rather than south.

THE WINTER (NOV. 1969-APR. 1970) will be 1° warmer — i.e. 40° average monthly temperature vs. 39° normal. Precipitation will be 15" (including 32" snow) which is 2" below the 17" normal total.

THE YEAR (JAN.-DEC. 1970) will bring normal (53°) average monthly temperatures, but precipitation will be off at least 20% — i.e. 31" total vs. the normal 38".

Nov. 1969: Daily temp. will be 2° warmer — i.e. 45° vs. the normal 43° average. Precip. will be down 50% — i.e. only 1" (incl. 5" snow) vs. the normal 2". 1-2, clear. 3-5, .1" prec. 1" snow. 6-7, clear. 8-9, .2" rain. 10-11, clear. 12, .2" prec. 1" snow. 13-14, clear. 15-16, .1" rain. 17-18, clear. 19-20, .1" rain. 21-22, clear. 23-24, .2" prec. 2" snow. 25-26, clear. 27-29, .1" rain. 30, clear.

Dec. 1969: Daily ave. temp. will be normal (at 34°) but precip. (incl. 5" snow) will be, at 2", one-third less than the normal 3". 1-3, clear. 4-5, .4" prec. 1" snow. 6-7, clear. 8-9, .2" rain. 10, clear. 11-12, .2" prec. 1" snow. 13-14, clear. 15-18, .4" prec. 1" snow. 19-21, clear. 22-26, .2" prec. 2" snow. 27-28, clear. 29-31, .2" rain.

Jan. 1970: With ave. daily temp. of 30° will be 1° below normal of 31°. Precip. incl. 10" snow will be, at 2", about 30% below the normal 3". 1, clear. 2-4, .2" prec. 3" snow. 5, clear. 6-8, .4" rain. 9-10, clear. 11-15, .2" rain. 16, clear. 17-19, .4" prec. 3" snow. 20, clear. 21-23, .2" rain. 24, clear. 25-27, .4" prec. 4" snow. 28, clear. 29-31, .2" rain.

Feb. 1970: Ave. daily temp. of 33° is 1° above the normal 32°. Precip. of 2", incl. 10" snow, is 1" below normal of 3". 1, clear. 2-4, .1" rain. 5, clear. 6-7, .3" prec. 2" snow. 8, clear. 9-10, .3" rain. 11, clear. 12-18, .2" prec. 2" snow. 19, clear. 20-22, 1.0" prec. 6" snow. 23-25, clear. 26-28, .1" rain.

March 1970: Ave. daily temp. of 43° is 3° above the normal of 40°. Precip. of 5", incl. 1" snow, is 40% above the normal 3". 1, clear. 2-4, 1.0" prec. 1" snow. 5, clear. 6-8, 1.0" rain. 9-12, clear. 13-15, 1.0" rain. 16-20, clear. 21-26, 2.0" rain. 27-31, clear.

April 1970: Ave. daily temp. of 51° is normal and so is the precip. (incl. 1" snow) of 3". 1-3, clear. 4-6, prec. .6"-1" snow. 7-9, clear. 10-12, .6" rain. 13-15, clear. 16-18, .6" rain. 19, clear. 20-22, .6" rain. 23, clear. 24-26,

.6" rain. 27-30, clear.

May 1970: Ave. daily temp. of 59° is 3° below the normal 62°. Precip. of 3" is normal. 1-3, clear. 4-6, .6" rain. 7, clear. 8-11, .3" rain. 12-13, clear. 14-17, .6" rain. 18, clear. 19-21, .6" rain. 22, clear. 23-25, .3" rain. 26-27, clear. 28-30, .6" rain. 31, clear.

June 1970: Ave. daily temp. of 72° is 1° above the normal of 71°. Precip. of 2" is 50% below the normal 4". 1-2, clear. 3-5, .4" rain. 6, clear. 7-9, .2" rain. 10-13, clear. 14-15, .2" rain. 16-17, clear. 18-20, .6" rain. 21-22, clear. 23-25, .4" rain. 26, clear. 27-29, .2" rain. 30, clear.

July 1970: Ave. daily temp. of 75° is normal. Precip. at 5" is up 25% above the 4" normal. 1-4, 1.0" rain. 5, clear. 6-8, 1.0" rain. 9-13, clear. 14-20, 1.5" rain. 21-23, clear. 24-27, 1.0" rain. 28-29, clear. 30, .5" rain.

Aug. 1970: Ave. daily temp. of 71° is 2° below normal. Precip. at 2" is one-third below the 3" normal. 1-2, clear. 3-5, .6" rain. 6-10, clear. 11-14, .6" rain. 15, clear. 16-18, .6" rain. 19-25, clear. 26-28, .6" rain. 29, clear. 30-31, .6" rain.

Sept. 1970: Ave. daily temp. of 68° is 1° above the normal 67°. Precip. at 1" however, is only one-third the normal 3". 1-4, clear. 5-7, .2" rain. 8, clear. 9-11, .2" rain. 12, clear. 13-16, .6" rain. 17-20, clear. 21-25, .4" rain. 26-27, clear. 28-30, .4" rain.

Oct. 1970: Ave. daily temp. of 56° is 1° above the normal 55°. Precip. at 2" is normal. 1-2, .4" rain. 3-4, clear. 5-8, .4" rain. 9-12, clear. 13-16, .8" rain. 17-22, clear. 23-26, .4" rain. 27-31, clear.

Nov. 1970: Ave. daily temp. of 41° is 2° below the normal 43°. Precip. of 3", incl. 4" snow, is 50% above the normal 3". 1-2, .4" rain. 3-4, clear. 5-9, .8" rain. 10, clear. 11-13, 1.2" rain. 14, clear. 15-17, .4" prec. 2" snow. 18, clear. 19-20, .4" prec. 2" snow. 21, clear. 22-24, .4" rain. 25, clear. 26-29, .4" rain. 30, clear.

See page 118

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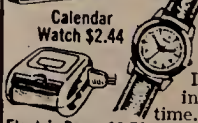
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KLUTCH forms a comfort cushion; holds dental plates so much firmer and snuggler that you can eat and talk with greater comfort and security; in many cases almost as well as with natural teeth. Klutch lessens the constant fear of a dropping, rocking, chafing plate . . . If your druggist doesn't have Klutch, don't waste money on substitutes, but send us 10¢ and we will mail you a generous trial box.
KLUTCH CO., Box 015K, Elmira, N.Y. 14902

5. MIDWESTERN STATES

The times of sunrise, sunset, moonrise, moonset (pages 22-44) and the planets (page 46) are for Boston only. The table below gives the corrections to be used for cities in the Midwest. Note the Key Letter for any given day (pages 22-44, 46). Then find the column below in which that Key Letter falls. The figure in that column for the city you seek is the minutes to add or subtract for accuracy of within 5 min. for that city. Example: Jan. 12, sunrise (p. 22) is 7:12 A.M., Key Letter N. Key Letter N for Chicago (last col. below) shows +4. So sunrise at Chicago will be 7:16 A.M., CST. If a city is not listed, interpolate between nearest two cities. (Further explanations appear on pages 92 and 93).

City	State	Latitude	Time Used	Key Letters				
				A-D m	E-H m	I m	J-M m	N-Q m
Cairo.....	Ill.	37 05	CST	+30	+18	+12	+7	-5
Chicago-Oak Park.....	Ill.	41 52	CST	+7	+6	+5	+5	+4
Danville.....	Ill.	40 07	CST	+13	+8	+5	+3	-2
Decatur.....	Ill.	39 51	CST	+20	+14	+12	+9	+3
E. St. Louis.....	Ill.	38 38	CST	+29	+21	+17	+12	+4
Peoria.....	Ill.	40 42	CST	+20	+16	+14	+12	+7
Rockford.....	Ill.	42 17	CST	+12	+12	+12	+12	+12
Springfield.....	Ill.	39 48	CST	+23	+17	+14	+12	+6
Fort Wayne.....	Ind.	41 04	EST	+61	+58	+56	+55	+52
Gary.....	Ind.	41 36	CST	+7	+6	+5	+4	+2
Indianapolis.....	Ind.	39 46	EST	+69	+63	+60	+57	+52
Muncie.....	Ind.	40 11	EST	+65	+60	+57	+55	+50
South Bend.....	Ind.	41 41	CST	+3	+2	+1	0	-2
Terre Haute.....	Ind.	39 28	CST	+15	+8	+5	+2	-5
Council Bluffs.....	Iowa	41 16	CST	+43	+40	+39	+38	+35
Davenport.....	Iowa	41 31	CST	+21	+19	+18	+17	+15
Des Moines.....	Iowa	41 35	CST	+33	+31	+30	+29	+27
Dubuque.....	Iowa	42 30	CST	+18	+18	+18	+19	+19
Sioux City.....	Iowa	42 30	CST	+41	+41	+41	+41	+42
Waterloo.....	Iowa	42 29	CST	+25	+25	+25	+25	+26
Fort Scott.....	Kans.	37 55	CST	+49	+39	+34	+30	+20
Liberal.....	Kans.	37 03	CST	+77	+65	+60	+54	+42
Oakley.....	Kans.	39 07	MST	+10	+3	-1	-4	-12
Salina.....	Kans.	38 53	CST	+58	+50	+46	+42	+34
Topeka.....	Kans.	39 03	CST	+49	+42	+38	+35	+27
Wichita.....	Kans.	37 42	CST	+60	+50	+45	+40	+30
Cheboygan.....	Mich.	45 40	EST	+41	+50	+54	+57	+66
Detroit-Dearborn.....	Mich.	42 20	EST	+48	+48	+48	+48	+48
Flint.....	Mich.	43 01	EST	+48	+50	+51	+51	+53
Grand Rapids.....	Mich.	42 58	EST	+56	+58	+58	+59	+61
Ironwood.....	Mich.	46 40	CST	0	+11	+16	+21	+32
Jackson.....	Mich.	42 15	EST	+54	+53	+53	+53	+53
Kalamazoo.....	Mich.	42 17	EST	+58	+58	+58	+58	+58
Lansing.....	Mich.	42 44	EST	+53	+54	+54	+54	+55
Pontiac.....	Mich.	42 40	EST	+48	+49	+49	+49	+50
Traverse City.....	Mich.	44 50	EST	+49	+55	+58	+61	+67
Albert Lea.....	Minn.	43 40	CST	+25	+28	+29	+31	+34
Bemidji.....	Minn.	47 30	CST	+15	+29	+35	+42	+56
Duluth.....	Minn.	46 47	CST	+7	+19	+24	+30	+42
Minneapolis-St. Paul.....	Minn.	44 57	CST	+19	+26	+29	+32	+39
Ortonville.....	Minn.	45 20	CST	+30	+38	+41	+45	+53
Jefferson City.....	Mo.	38 32	CST	+37	+29	+25	+20	+12
Joplin.....	Mo.	37 04	CST	+51	+39	+34	+28	+17
Kansas City.....	Mo.	39 05	CST	+45	+38	+34	+30	+23
Poplar Bluff.....	Mo.	36 40	CST	+35	+23	+17	+11	-1
St. Joseph.....	Mo.	39 46	CST	+44	+38	+35	+32	+26
St. Louis.....	Mo.	38 38	CST	+29	+21	+17	+12	+4
Springfield.....	Mo.	37 13	CST	+46	+34	+29	+23	+12
Chadron.....	Neb.	42 50	CST	+66	+67	+68	+68	+70
Grand Island.....	Neb.	40 52	CST	+54	+51	+49	+48	+44
Lincoln.....	Neb.	40 49	CST	+48	+44	+43	+41	+37
Norfolk.....	Neb.	42 01	CST	+47	+46	+45	+45	+44
North Platte.....	Neb.	41 10	CST	+63	+60	+59	+57	+55
Omaha.....	Neb.	41 16	CST	+43	+41	+40	+38	+36
Sidney.....	Neb.	41 08	CST	+72	+69	+67	+66	+63
Bismarck.....	N. D.	46 48	CST	+42	+53	+59	+64	+77
Fargo.....	N. D.	46 52	CST	+25	+37	+43	+49	+61
Grand Forks.....	N. D.	47 56	CST	+22	+37	+44	+51	+67
Minot.....	N. D.	48 15	CST	+37	+54	+61	+68	+85
Williston.....	N. D.	48 10	CST	+47	+63	+70	+78	+94
Akron.....	Ohio	41 05	EST	+46	+43	+42	+40	+37
Canton.....	Ohio	40 48	EST	+47	+43	+41	+39	+36
Cincinnati-Hamilton.....	Ohio	39 06	EST	+64	+57	+54	+50	+43
Cleveland-Lakewood.....	Ohio	41 30	EST	+46	+43	+42	+42	+40
Columbus.....	Ohio	39 58	EST	+56	+50	+48	+45	+40
Dayton-Springfield.....	Ohio	39 46	EST	+58	+55	+52	+49	+43
Lima.....	Ohio	40 45	EST	+58	+54	+52	+50	+47
Toledo.....	Ohio	41 39	EST	+52	+51	+50	+49	+47
Youngstown.....	Ohio	41 06	EST	+43	+40	+38	+37	+34
Aberdeen.....	S. D.	45 30	CST	+38	+46	+50	+54	+62

Continued on next page

MIDWESTERN STATES (Continued)

City	State	Latitude	Time Used	Key Letters				
				A-D m	E-H m	I m	J-M m	N-Q m
Murdo	S. D.	43 53	CST	+53	+57	+59	+60	+65
Pierre	S. D.	44 21	CST	+50	+55	+57	+59	+65
Rapid City	S. D.	44 05	CST	+62	+67	+69	+71	+75
Sioux Falls	S. D.	43 33	CST	+38	+41	+43	+44	+47
Eau Claire	Wis.	44 51	CST	+13	+19	+22	+25	+31
Green Bay	Wis.	44 30	CST	0	+5	+8	+10	+16
LaCrosse	Wis.	43 40	CST	-15	-19	-21	-22	-26
Madison	Wis.	43 04	CST	+11	+12	+13	+14	+16
Milwaukee	Wis.	43 02	CST	+5	+7	+7	+8	+10
Oshkosh	Wis.	44 01	CST	+2	+6	+8	+10	+15
Wausau	Wis.	44 56	CST	+5	+12	+15	+18	+25
Montreal	Que.	45 30	EST	-4	+5	+10	+15	+23
Quebec	Que.	46 45	EST	-19	-6	+1	+8	+20
Toronto	Ont.	43 45	EST	+29	+31	+33	+36	+38

5. MIDWEST WEATHER FORECAST

Verification Base: Chicago (O'Hare). However, this is to serve for Minnesota, Wisconsin, and Michigan (remembering these states are slightly colder) and Indiana, Iowa (slightly warmer).

THE WINTER (NOV. 1969-APR. 1970) will be 2° warmer — i.e. 36° average monthly temperature vs. 34° normal, while precipitation will be 2" less — i.e. 12" total, incl. 36" snow, vs. 14" normal.

THE YEAR (JAN.-DEC. 1970) will be 1° warmer — i.e. 51° average monthly temperature vs. 50° normal. Precipitation will be 32" total which is normal.

Nov 1969: Daily temp. will be 3° warmer — i.e. 43° ave. monthly temp. vs. 40° normal, while prec. (incl. 2" snow) will be 2" which is normal. 1-2, clear. 3-4, .2" rain. 5-7, clear. 8-9, .4" rain. 10-11, clear. 12, .4" rain. 13-14, clear. 15-16, .2" rain. 17, clear. 18, clear. 19-20, .2" rain. 21-22, clear. 23-24, .3" prec. 2" snow. 25-26, clear. 27-29, .1" rain. 30, clear.

Dec. 1969: Daily temp. will be 5° warmer (34°) than the 29° normal. Precip., incl. 9" snow, will, at 1", be some 50% below normal (2"). 1-3, clear. 4-5, .2" prec. 1" snow. 6-7, clear. 8-9, .1" rain. 10, clear. 11-12, .1" prec. 1" snow. 13-14, clear. 15-18, .2" prec. 2" snow. 19-21, clear. 22-26, .3" prec. 4" snow. 27-28, clear. 29-31, .1" prec. 1" snow.

Jan. 1970: Daily ave. temp. will be at 24° one degree below the normal of 25°. Precip. incl. 15" snow will be at 1", 50% below normal 2". 1, clear. 2-4, .1" prec. 5" snow. 5, clear. 6-8, .2" rain. 9-10, clear. 11-15, .1" rain. 16, clear. 17-19, .2" prec. 5" snow. 20, clear. 21-23, .1" rain. 24, clear. 25-27, .2" prec. 5" snow. 28, clear. 29-31, .1" rain.

Feb. 1970: Ave. daily temp. at 27° is normal. Precip. at 2" is normal. Snows 5". 1, clear. 2-4, .1" rain. 5, clear. 6-7, .3" prec. 1" snow. 8, clear. 9-10, .3" rain. 11, clear. 12-18, .2" prec. 1" snow. 19, clear. 20-22, 1.0" prec. 3" snow. 23-25, clear. 26-28, .1" rain.

March 1970: Ave. daily temp. of 40° is 4° above the normal 36°. Precip. of 3", incl. 4" snow, is normal. 1, clear. 2-4, .5" prec. 2" snow. 5, clear. 6-8, .5" prec. 1" snow. 9-12, clear. 13-15, .5" prec. 1" snow. 16-20, clear. 21-26, 1.5" rain. 27-31, clear.

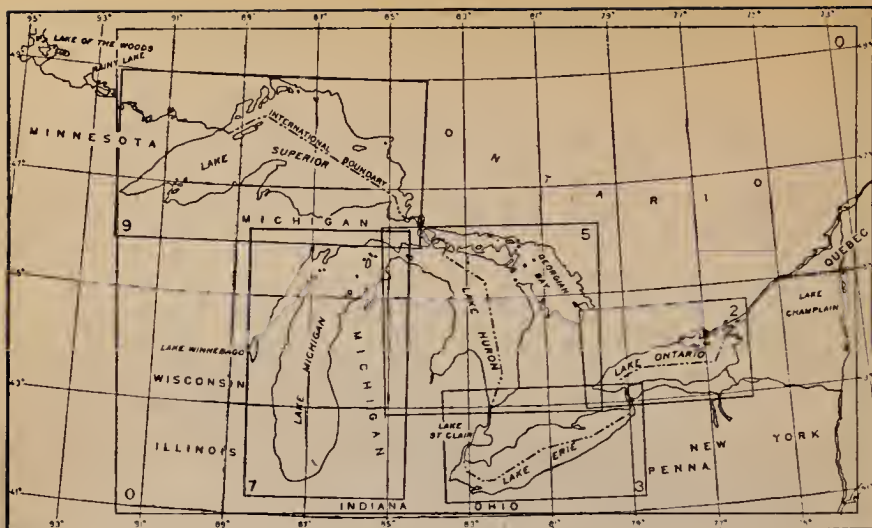
April 1970: Ave. daily temp. of 50° is 2° above the normal 48°. Precip. incl. 1" snow, of 3" is normal. 1-3, clear. 4-6, .6" prec. 1" snow. 7-9, clear. 10-12, .6" rain. 13-15, clear. 16-18, .6" rain. 19, clear. 20-22, .6" rain. 23, clear. 24-26, .6" rain. 27-30, clear.

May 1970: Ave. daily temp. of 60° is 2° above the normal 58°. Precip. of 4" is 30% above the normal 3". 1-3, clear. 4-6, .8" rain. 7, clear. 8-11, .4" rain. 12-13, clear. 14-17, .8" rain. 18, clear. 19-21, .8" rain. 22, clear. 23-25, .4" rain. 26-27, clear. 28-30, .8" rain. 31, clear.

June 1970: Ave. daily temp. of 68° is normal as is the 4" total precip. 1-2, clear. 3-5, .8" rain. 6, clear. 7-9, .4" rain. 10-13, clear. 14-15, .4" rain. 16-17, clear. 18-20, 1.2" rain. 21-22, clear. 23-25, .8" rain. 26, clear. 27-29, .4" rain. 30, clear.

July 1970: Ave. daily temp. of 75° is 1° above the normal 74°. Precip. at 4" is 30% above the normal 3". 1-4, .8" rain. 5, clear. 6-8, .8" rain. 9-13, clear. 14-20, 1.2" rain. 21-23, clear. 24-27, .8" rain. 28-29, clear. 30-31, .4" rain.

Continued on page 97



THE RECLAMATION OF LAKE ERIE

■ FOR SEVERAL YEARS now this Almanac has been publishing articles about the Great Lakes. In the winter of 1969, we noticed an article which had appeared in Conservation News. It brought home sharply the enormity of the task, the billions of expense, it is going to take—if U.S. and Canada can agree to it—of reclaiming just one lake—namely, Lake Erie. The article to which we refer follows:

A comprehensive report has been completed on the pollution conditions of Lake Erie and the actions which must be taken if a biological cataclysm is to be prevented in this Great Lake.

The Federal Water Pollution Control Administration's (FWPCA) report calls for an immediate start on spending \$1.1 billion to control municipal pollution and \$285 million to control industrial pollution. Such spending would curb the contamination from cities and industries through 1990 and would begin to reverse the degradation trend in the lake.

However, additional spending still would be needed to control wastes washed into the waters from farm lands and sewer overflows, and to compensate for population increases later in the century.

FWPCA Commissioner Joe G. Moore Jr., wrote in the report's introduction that "Man is destroying Lake Erie" but among the Great Lakes, Erie is "the most amenable to corrective measures because of its relatively small volume, rapid flushout time, and the high volume of input of excellent quality Lake Huron water."

He adds, "the cleanup of Lake Erie is less a problem of engineering than it is a problem of diverse, inadequate and unwieldy . . . governmental policies, funding and management. The technical engineering methods of waste control are known or close at hand . . ."

The report identifies 298 municipal and 182 industrial polluters around the lake, the amount and types of pollutants they contribute, the control measures required and abatement schedules needed or being followed. The most serious problem that the report singles out is the accelerated aging of the lake brought about by nutrients (phosphorus and nitrogen) in sewage and some industrial wastes which act as a fertilizer to spur algal growths. The organic remains of this superabundant aquatic crop place a severe demand on the oxygen in the water which is estimated to be 18 times greater than the oxygen depletion caused by treated sewage.

The report notes that nearly one-fourth of the lake becomes devoid of oxygen in its bottom waters during the summer and that this situation is increasing in size and duration.

While man's activities have prematurely added an estimated 15,000 years to the natural age of the lake, the report says, "the rate of aging . . . can be brought back to near the natural rate."

"Therefore, it is possible that in a relatively short time," the report warns, "the overproductivity of Lake Erie can become selfsustaining

because of this ever-increasing reserve. It is also possible that if this alarming progress grows, Lake Erie may face a sudden biological cataclysm that will exhaust, for all time, most of the oxygen in the greater part of the lake."

The report contains a mass of evidence to demonstrate the serious degradation of Lake Erie's waters, including the 24 bacteria polluted beaches around the lake; the 40 billion gals. a year of raw sewage from sewage overflows which infect the lake; the 360 industrial concerns whose contribution of 9.6 billion gals. a day of waste water equals the raw sewage of nearly three million people; the proliferation of bottom-dwelling, pollution tolerant sludge worms whose numbers in the lake's western basin have increased more than 10 times since 1930; the disappearance of prized game and commercial fish, and the lake's poisoned tributaries, such as the lower Cuyahoga River which has no visible life, and the Buffalo River, "... a repulsive holding basin . . . devoid of oxygen and almost sterile."

Among the FWPCA recommendations, the report urges forceful implementation of water quality standards developed by the five lake states and approved by the Dept. of the Interior, and focuses on the need to pursue the goals of a 1965 federal-state enforcement conference which calls for installation of remedial treatment facilities by 146 industrial and 118 municipal polluters by 1972 or earlier.

A successful and total cleanup of the lake will only be achieved if there is joint management of water resources by the United States and Canada, the report states.

WINNING ESSAY OF THE 1969 ESSAY CONTEST

"How I Start My Garden Indoors Without A Greenhouse"

Recipe for a city gardener who summers on Cape Cod: raise flowers and vegetables from seed on your sunny window sills.

Ingredients: One seed starting kit

One cool room (if needed, remove a radiator)

One husband willing to construct plant trays

Immeasurable loving care

Begin sowing seed in February. By mid-June apartment should overflow with 150 hardy plants of tomato, cucumber, zucchini, zinnia, dahlia, impatiens, cynoglossum and geranium.

Transport entire garden on car roof to the Cape and sink pots into pre-fertilized beds.

Yield: beautiful blossoms, bumper crops and abundant joy in the heart of the city gardener.

Mrs. M. P. Ould, New York, N. Y.

2nd PRIZE Winner: Mrs. Beatrice Lackey, Salt Lake City, Utah

3rd PRIZE Winner: Mrs. W. M. Burnett, Marietta, Ga.

1970 ESSAY CONTEST

For 1970, the money will go (1st, \$25.00 — 2nd, \$15.00 — 3rd, \$5.00) for the best 100-word essay on "How Do You Make A Garden Grow?" Contest closes May 1, 1970.

No entries returned; all become property of Yankee, Inc., which reserves all rights in the material submitted. In case of tie, place money lumped and divided. Staff of YANKEE, final judge. Winners announced 1971 OFA.

Address: Essay Contest, Yankee, Inc., Dublin, N. H. 03444.

AN HISTORY OF THE FOUNDER OF THE "DABOLL ALMANAC"

Continued from page 81

his father's training.

When Squire Daboll died in August 1863, he had nearly completed copy for the next year's Almanac and he had trained his son David A. Daboll to take over the work.

The founder's grandson, before assuming the Almanac duties, was a civil engineer. When he died July 8, 1895 copy for the next issue was almost completed and his son David A. Daboll, Jr., known as David "Aut," was ready to carry on.

For the first time the Almanac was in the hands of a trained meteorologist. For 36 years he directed its preparation. David A. Daboll, Jr., died in 1931, only 8 days before his 91st birthday.

One more member of the family took his turn. Ernest C. Daboll continued **The New England Almanac and Farmer's Friend**, but with his death in the autumn of 1967 the long Daboll dynasty ended.

YOUNG CHARLOTTE or THE FROZEN MAID

An early 19th century Ballad by William Lorenzo Carter sent in by numerous Almanac readers in reply to our request for the words in the 1969 OFA.

Young Charlotte lived by the mountain-side
In a lone and dreary spot,
No dwelling there, for five miles round,
Except her father's cot;

But yet on many a Winter's eve
Young swains would gather there,
For her father kept a social board
And she was very fair.

Her father loved to see her dressed
Fine as a city belle,
For she was the only child he had
And he loved his daughter well.

'Twas New Year's Eve. The sun went
down.
Wild looked her anxious eyes
Along the frosty window panes
To see the sleighs pass by.

At a village inn, fifteen miles round,
There's a merry ball tonight.
The air is freezing cold above,
But the hearts are warm and light.

And while she lookd with longing eyes,
Then a well-known voice she hears,
And dashing up to the cottage door
Young Charley's sleigh appears.

Her mother says, "My daughter dear,
This blanket around you fold,
For it is a dreadful night abroad,
You'll take your death of cold."

"Oh, no! oh, no! young Charlotte said,
And she laughed like a gypsy queen,
"For to ride in blankets muffled up
I never could be seen.

"My silken cloak is quite enough.
'Tis lined, you know, throughout,
And then I have the silken scarf
To tie my face about."

Her gloves and bonnet being on,
She jumped into the sleigh
And away they ride o'er the mountain-
side
And o'er the hills away.

There's merry music in the bells
As o'er the hills they go,
For the creaking rake the runners make
As they bite the frozen snow.

Then o'er the hills and faster o'er
And by the cold starlight

When Charles, in these few frozen
words,
At last the silence broke;

"Such a night as this I never knew,
My reins I scarce can hold."
Young Charlotte said with a trembling
voice,
"I am exceeding cold."

He cracked his whip which urged his
steed
Much faster than before,
And then the other five miles round
In silence were rode o'er.

"How fast," says Charles, "the freezing
ice
Is gathering on my brow."
Young Charlotte said with a feeble
voice,
"I'm growing warmer now."

Then o'er the hills and faster o'er
And by the cold starlight
Until they reached the village inn
And the ballroom was in sight.

They reached the inn, and Charles
sprang out
And, giving his hand to her,
"Why sit you like a monument
That has no power to stir?"

He called her once, he called her twice,
But yet she never stirred.
He called her name again and again,
But she answered not a word.

He took her hand in his, O God!
T'was cold and hard as stone.
He tore the mantle from her brow
And the cold stars on her shown.

Then quickly to the lighted hall
Her lifeless form he bore,
For Charlotte was a frozen corpse
And a word spoke never more.

He knelt himself down by her side
And bitter tears did flow,
For he said, "My young intended
bride,
I never more shall know."

He flung his arms around her neck
And kissed her marble brow.
His thoughts went back to the place
she said,
"I'm growing warmer now."

He bore her out into the sleigh
And with her he rode home,
And when they reached the cottage
door
O' how her parents mourned!

They mourned for the loss of their
daughter dear,
And Charles mourned o'er the gloom
When Charles' heart with grief did
break.
They slumber in one tomb.

Reliable laxative relief



Born in Virginia a hundred years ago and trusted throughout the South, Fleet Phospho-Soda remains the tried and tested laxative that you know you can depend on. Ask for Phospho-Soda, *Flavored or Regular.*

If symptoms persist, be sure to call your physician immediately. Take only when needed or when prescribed by a physician. *Do not use* when nausea, vomiting or abdominal pain is present. As with all laxatives, frequent or prolonged use may result in dependence.

that people have trusted for 100 years.



C. B. FLEET CO. INC., Lynchburg, Va. 24505

Phospho[®]-Soda

6.-7. WESTERN AND MOUNTAIN STATES

The times of sunrise, sunset, moonrise, moonset (pages 22-44) and the planets (page 46) are for Boston only. The table below gives the corrections to be used for both the Northern and Southern States of the Far West. Note the Key Letter for any given day (pages 22-44, 46). Then find the column below in which that Key Letter falls. The figure in that column for the city you seek is the minutes to add or subtract for that city. Example: Jan. 12, sunrise (page 22) is 7:12 A.M. Key Letter N. Key Letter N for San Francisco (last col. below) shows +9. So sunrise at San Francisco will be 7:21 A.M., PST. If a city is not-listed, interpolate between nearest two cities. (Further explanations appear on pages 92 and 93).

NORTHERN TIER

The adjusted times found for these cities will be accurate generally to within 5 min.

City	State	Latitude		Time Used	Key Letters				
					A-D	E-H	I	J-M	N-O
Fresno.....	Cal.	36	44	PST	+33	+21	+15	+9	-3
Redding.....	Cal.	40	30	PST	+31	+27	+25	+23	+19
Sacramento.....	Cal.	38	35	PST	+34	+26	+22	+18	+9
San Francisco Incl.									
Oakland & San Jose.	Cal.	37	47	PST	+40	+29	+25	+20	+9
Stockton.....	Cal.	37	57	PST	+35	+26	+21	+16	+6
Craig.....	Colo.	40	30	MST	+32	+28	+26	+24	+19
Denver-Boulder.....	Colo.	39	45	MST	+25	+19	+16	+13	+8
Grand Junction.....	Colo.	39	03	MST	+41	+33	+30	+26	+19
Pueblo.....	Colo.	38	16	MST	+28	+18	+14	+10	+1
Trinidad.....	Colo.	37	08	MST	+31	+19	+14	+8	-3
Boise.....	Idaho	43	37	MST	+56	+59	+61	+62	+65
Lewiston.....	Idaho	46	25	PST	-12	-1	+4	+9	+20
Pocatello.....	Idaho	42	55	MST	+44	+45	+45	+46	+47
Billings.....	Mont.	45	47	MST	+16	+25	+29	+33	+43
Butte.....	Mont.	46	01	MST	+32	+41	+46	+50	+60
Glasgow.....	Mont.	48	10	MST	0	+15	+22	+30	+46
Great Falls.....	Mont.	47	30	MST	+21	+34	+41	+47	+61
Helena.....	Mont.	46	36	MST	+27	+39	+44	+49	+61
Miles City.....	Mont.	46	30	MST	+3	+14	+19	+24	+35
Carson City-Reno.....	Nev.	39	31	PST	+25	+18	+15	+11	+5
Elko.....	Nev.	40	50	PST	+4	+1	-1	-3	-7
Las Vegas.....	Nev.	36	10	PST	+16	+3	-4	-10	-24
Eugene.....	Ore.	44	03	PST	+22	+26	+28	+30	+34
Pendleton.....	Ore.	45	35	PST	-2	+7	+11	+15	+24
Portland.....	Ore.	45	31	PST	+14	+23	+26	+30	+39
Kanab.....	Utah	37	03	MST	+63	+52	+46	+40	+29
Moab.....	Utah	38	35	MST	+47	+38	+34	+30	+21
Ogden.....	Utah	41	14	MST	+48	+45	+44	+42	+40
Salt Lake City.....	Utah	40	45	MST	+49	+45	+43	+41	+38
Vernal.....	Utah	40	30	MST	+40	+36	+34	+32	+27
Bellingham.....	Wash.	48	54	PST	+4	+19	+26	+32	+48
Seattle-Tacoma-									
Olympia.....	Wash.	47	37	PST	+6	+20	+26	+32	+46
Spokane.....	Wash.	47	40	PST	-16	-1	+5	+12	+27
Walla Walla.....	Wash.	46	04	PST	-5	+5	+9	+14	+24
Casper.....	Wyo.	42	50	MST	+20	+21	+22	+22	+24
Cheyenne.....	Wyo.	41	08	MST	+17	+14	+13	+11	+9
Rawlins.....	Wyo.	41	45	MST	+27	+25	+25	+24	+23
Rock Springs.....	Wyo.	41	35	MST	+35	+33	+33	+32	+30
Sheridan.....	Wyo.	44	50	MST	+14	+20	+23	+26	+33

SOUTHERN TIER

The adjusted times found for these cities will be accurate generally to within 10 mins.

Flagstaff.....	Ariz.	35	08	MST	+62	+50	+42	+35	+22
Phoenix.....	Ariz.	33	27	MST	+69	+53	+44	+35	+19
Tucson.....	Ariz.	32	13	MST	+68	+50	+40	+29	+11
Yuma.....	Ariz.	32	40	MST	+81	+64	+54	+44	+27
Fort Smith.....	Ark.	35	25	CST	+54	+41	+33	+26	+13
Bakersfield.....	Cal.	35	30	PST	+32	+19	+12	+4	-8
Barstow.....	Cal.	34	55	PST	+25	+12	+4	-4	-18
Los Angeles Incl. Pasa-									
dena & Santa Monica	Cal.	34	03	PST	+32	+17	+9	0	-14
San Diego.....	Cal.	32	43	PST	+31	+14	+4	-5	-23
Albuquerque.....	N. M.	35	05	MST	+43	+30	+22	+15	+1
Gallup.....	N. M.	35	30	MST	+50	+38	+31	+24	+11
Las Cruces.....	N. M.	32	20	MST	+51	+34	+23	+12	-5
Roswell.....	N. M.	33	20	MST	+39	+23	+14	+5	+11
Santa Fe.....	N. M.	35	41	MST	+39	+26	+19	+12	0
Ardmore.....	Okla.	34	05	CST	+67	+53	+44	+36	+21
Oklahoma City.....	Okla.	35	28	CST	+66	+53	+46	+38	+26
Tulsa.....	Okla.	36	09	CST	+58	+46	+40	+33	+21

6. THE GREAT PLAINS WEATHER FORECAST

For weather forecast of the Pacific Northwest — see page 114.

Verification Base: Denver, Colorado. However, this forecast is meant to indicate something about the weather for the Dakotas, Nebraska, Missouri, Kentucky, as well as Montana and Wyoming. As the "worst weather in the world" is at Medicine Hat, Fargo, and Bismarck (with parts of it seeping into Minnesota), for these points it should be much colder, wilder, and more severe — but the storm dates should be okay.

THE WINTER (NOV. 1969-APR. 1970) will be at least 1° warmer than normal — i.e. 34° average monthly temperature vs. 33° normal. Precipitation will be 4.6" below normal — i.e. 26" total vs. 30.6" which includes 58" snow.

THE YEAR (JAN.-DEC. 1970) will be 1° warmer — i.e. 51° average monthly temperature vs. 50° normal — and 2.9" wetter — i.e. 17.0" total precipitation vs. 14.1" normal.

Nov. 1969: Daily temp. will be 3° warmer — i.e. 43° ave. vs. 40° normal. Precip. will be normal — i.e. 1" (incl. 15" snow) vs. 1" normal total. 1-2, clear. 3-5, .1" prec. 3" snow. 6-7, clear. 8-9, .2" prec. 2" snow. 10-11, clear. 12, .2" rain. 13-14, clear. 15-16, .1" prec. 2" snow. 17, clear. 18-20, .1" rain. 21-22, clear. 23-24, .2" prec. 8" snow. 25-26, clear. 27-29, .1" prec. 30, clear.

Dec. 1969: Daily temp. will be at 33°, 1° above normal (32°). Precip. at 1", (incl. 4" snow) will be almost double the normal of .6". 1-3, clear. 4-5, .2" prec. 1" snow. 6-7, clear. 8-9, .1" rain. 10, clear. 11-12, .1" rain. 13-14, clear. 15-18, .2" prec. 1" snow. 19-21, clear. 22-26, .3" prec. 2" snow. 27-28, clear. 29-31, .1" rain.

Jan. 1970: Daily ave. temp. at 29° is 1° below normal while total precip. is at 1.0", incl. 6" snow, double the normal .5". 1, clear. 2-4, .1" prec. 2" snow. 5, clear. 6-8, .2" rain. 9-10, clear. 11-15, .1" rain. 16, clear. 17-19, .2" prec. 2" snow. 20, clear. 21-23, .1" rain. 24, clear. 25-27, .2" prec. 2" snow. 28, clear. 29-31, .1" rain.

Feb. 1970: Ave. daily temp. at 33° is normal. Precip. at 2" incl. 8" snow is almost four times the normal .6". 1-2, clear. 3-4, .1" rain. 5, clear. 6-7, .3" prec. 3" snow. 8, clear. 9-10, .3" rain. 11, clear. 12-18, .2" prec. 3" snow. 19, clear. 20-22, 1.0" prec. .9" snow. 23-25, clear. 26-28, .10" rain.

March 1970: Ave. daily temp. of 35° is 4° below the normal 39°. Precip. of 2" incl. 8" snow is double the normal 1.0". 1, clear. 2-4, .5" prec. 4" snow. 5, clear. 6-8, .2" prec. 2" snow. 9-12, clear. 13-15, .5" prec. 1" snow. 16-20, clear. 21-26, .3" prec. 1" snow. 27-31, clear.

April 1970: Ave. daily temp. of 47° is 1° below the normal 48°. Precip. of 2", incl. 10" snow, is normal. 1-3, clear. 4-6, .4" prec. 4" snow. 7-9, clear. 10-12, .4" prec. 2" snow. 13-15, clear. 16-

18, .4" prec. 2" snow. 23, clear. 24-26, .4" rain. 27-30, clear.

May 1970: Ave. daily temp. of 57° is normal as is the precip. of 2". 1-3, clear. 4-6, .4" rain. 7, clear. 8-11, .2" rain. 12-13, clear. 14-17, .4" rain. 18, clear. 19-21, .4" rain. 22, clear. 23-25, .2" rain. 26-27, clear. 28-30, .4" rain. 31, clear.

June 1970: Ave. daily temp. of 69° is 2° above the normal 67°. Precip. at 1" is normal. 1-2, clear. 3-5, .2" rain. 6, clear. 7-9, .1" rain. 10-13, clear. 14-15, .1" rain. 16-17, clear. 18-20, .3" rain. 21-22, clear. 23-25, .2" rain. 26, clear. 27-29, 1" rain. 30, clear.

July 1970: Ave. daily temp. of 74° is 1° above the normal 73°. Precip. of 1" is 50% below the normal 2". 1-4, .2" rain. 5, clear. 6-8, .2" rain. 9-13, clear. 14-20, .3" rain. 21-23, clear. 24-27, .2" rain. 28-29, clear. 30-31, .1" rain.

Aug. 1970: Ave. daily temp. of 68° is 3° above the normal 65°. Precip. at 1" is normal. 1-2, clear. 3-5, .2" rain. 6-10, clear. 11-14, .2" rain. 15, clear. 16-18, .2" rain. 19-25, clear. 26-28, .2" rain. 29, clear. 30-31, .2" rain.

Sept. 1970: Ave. daily temp. of 63° is normal. Precip. at 1" also is normal. 1-4, clear. 5-7, .2" rain. 8, clear. 9-11, .2" rain. 12, clear. 13-16, .6" rain. 17-20, clear. 21-25, .4" rain. 26-27, clear. 28-30, .4" rain.

Oct. 1970: Ave. daily temp. of 54° is 2° above the normal 52°. Precip. at 1" is normal. 1-2, .2" rain. 3-4, clear. 5-8, .2" rain. 9-12, clear. 13-16, .4" rain. 17-22, clear. 23-26, .2" rain. 27-31, clear.

Nov. 1970: Ave. daily temp. of 41° is 1° above the normal 40°. Precip. of 1", incl. 3" snow, is normal. 1-2, .1" rain. 3-4, clear. 5-9, .2" rain. 10, clear. 11-13, .3" rain. 14, clear. 15-17, .1" prec. 1" snow. 18, clear. 19-20, .1" prec. 1" snow. 21, clear. 22-24, .1" rain. 25, clear. 26-29, .1" prec. 1" snow. 30, clear.

See page 118



Pleasures of Overland Travel.

The grandest of American scenery borders the magnificent route of the Pacific Railroads. Since their completion, the glorious views of mountain grandeur in **The Yosemite**, **The Yellowstone**, have become known. The sublimities of **Colorado**, the **Rocky Mountains**, canyons of **Utah**, and the **Sierra Nevadas**, have become famous. The attractions of the Far West for mining, stock raising and agriculture have added millions of wealth and population.

The glorious mountain climate, famed for its invigorating effects have attracted tourists and health seekers from the whole world. The golden land of California, its seaside pleasure resorts, its fertile grain fields, fruit gardens and flowers, have given irresistible charms to visitors; until now, a tour across the Continent opens to the traveler a succession of scenes, worthy the efforts of a life time to behold.

In no part of the world is travel made so easy and comfortable as on the Pacific Railroad. One lives at home in the Palace Car with as much true enjoyment as in the home drawingroom, and with the constant change of scenes afforded from the car window, it is far more enjoyable than the saloon of a fashionable steamer. For an entire week or more, as the train leisurely crosses the Continent, the little section and berth allotted to you, so neat and clean, so nicely furnished and kept, becomes your home. Here you sit and read, play your games, indulge in social conversation and glee, and if fortunate enough to possess good company of friends to join you, the overland tour becomes an intense delight.

The sleeping-cars from New York to Chicago, proceeding at their rushing rate of forty or more miles per hour, give to travelers no idea of the true comfort of Pullman car life. From Chicago westward the cars are finer, and traveling more luxurious, likewise the rate of speed is slower and the motion of the train more easy than on roads farther east.

The slow rate of speed, which averages but twenty to thirty miles per hour, day and night, produces a peculiarly smooth, gentle and easy motion, most soothing and agreeable. The straight track, which for hundreds of miles is without a curve, avoids all swinging motions of the cars; sidelong bumps are unknown. And the steady, easy jog of the train, as it leisurely moves westward, gives a feeling of genuine comfort, such as no one ever feels or enjoys in any other part of the world.

On the second day out from Omaha the traveler is fast ascending the high plains and summits of the Rocky Mountains.

If everyone feels belittled, 'tis on the plains, when each individual seems but a little mite, amid this **majesty of loneliness**.

Night time comes, and then as your little berths are made up, and you snugly cover yourself up, under **double blankets** (for the night air is always crisp and cold), perhaps you will often witness the

sight of a prairie fire, or the vivid flashes of lightning; some of nature's greatest scenes hardly less interesting than the plains, and far more fearful and awe-inspiring. Then turning to rest, you will sleep amid the easy roll of the car, as sweetly and refreshingly as ever upon the home-bed. How little has ever been written of "Night on the Pacific Railroad," the delightful, snug, rejuvenating sleeps on the Pacific Railroad.

You soon ascend the Rocky Mountains at Sherman, and view there the vast mountain range, the "Back Bone of the Continent," and again descend and thunder amid the cliffs of Echo and Weber Canons. You carry with you your Pullman house and all its comforts, and from your little window, as from your little boudoir at home, you will see the mighty wonders of the Far West.

It is impossible to tell of the pleasures and joys of the palace ride you will have—five days—it will make you so well accustomed to car life, you feel, when you drop upon the wharf of San Francisco, that you had left genuine comfort behind, and even the hotel, with its cosy parlor and cheerful fire, has not its full recompense.

Practical Hints for Comforts by the Way.—To enjoy palace car life properly, one always needs a good companion. This obtained, take a section together, wherever the journey leads you. From Chicago to the Missouri River, the company in sleeping-cars is usually quiet and refined, but beyond there is often an indescribable mixture of races in the same car, and if you are alone, often the chance is that your "*compagnon du voyage*" may not be agreeable.

Fee your porter on the sleeping-car always—if he is attentive and obliging, give him a dollar.

Meals.—Usually all the eating-houses on both the Pacific Railroads are excellent. The keepers have to maintain their culinary excellence under great disadvantages, especially west of Sidney, as all food but meats must be brought from a great distance.

Travelers need to make no preparations for eating on the cars, as meals at all dining-halls are excellent, and food of great variety is nicely served—buffalo meat, antelope steak, tongue of all kinds, and always the best of beefsteaks. Laramie possesses the reputation of the best steak on the Pacific Railroad. Sidney makes a specialty, occasionally, of antelope steak.

A little lunch-basket nicely stowed with sweet and substantial bits of food will often save you the pain of long rides before meals, when the empty stomach craves food, and failing to receive it, lays you up with the most dismal of sick headaches; it also serves you splendidly whenever the train is delayed. To be well on the Pacific Railroad, eat at regular hours, and never miss a meal. Most of the sickness which we have witnessed, has arisen from irregular eating, or injudicious attempts at economy by skipping a meal to save a dollar.

The usual price of meals at all stations overland is \$1.00; at Sacramento 75 cents, and at Lathrop 50 cents—the cheapest and best meals, for the money, of your whole tour. We can only advise you, as you have to pass through so many extremes of temperature, to always wear your underclothing, day and night, through the overland trip, and add an overcoat if the air grows chilly.

At San Francisco, the Pacific Transfer Company will take your trunk to any hotel or private residence for 50 cents.

Hotel coaches will also be found at the depot in San Francisco, and their runners on the Oakland ferryboat.

Horse-cars run from the wharf or depot to all hotels.

Hotel Charges and Rooms.—The uniform prices of board in the West are \$3.00 to \$4.50 per day at Chicago and San Francisco; \$3.00 to \$4.00 per day at Omaha, Denver and Salt Lake City.

If traveling with ladies, it is good policy, when within 100 miles of each city where you expect to stop, to telegraph to your hotel in advance, requesting nice rooms reserved, always mentioning that you have ladies.

Carriages.—Whenever disposed to take horses and carriage for a ride, look out with sharp eyes for the tricks of the trade: if no price or time is agreed upon, you will have to pay dearly, and the farther west you go the hire of horse flesh grows dearer (though the value per animal rapidly grows less). Ten-dollar bills melt quicker in carriage rides than in any other "vain show."

7. PACIFIC NORTHWEST WEATHER FORECAST

Verification Base: Portland, Oregon. However, this forecast should be useful if you reduce the amounts of rain as you go south all down the coast to Sa. Francisco. No attempt is made herewith for Southern California or the desert states as the variations, except around coastal Southern California, are too small to be meaningful. Nor have we summarized the winter, as snow (normally 7.9") for the six winter months is not a problem. However, we have included November and December 1969 — just in case.

THE WINTER (NOV. 1969-APR. 1970) will be at least 2° warmer than normal — i.e. 47° vs. 45° average monthly temperature. Precipitation will be 2" less than normal — i.e. 25" vs. 27" total precipitation.

THE YEAR (JAN.-DEC. 1970) will be 3° warmer 56° vs. 53° average monthly temperature while precipitation is down from 40.5" to 32" total for year.

Nov. 1969: Daily ave. temp. 53° (4° above normal). Rain 5" (1" below normal). 1. clear. 2-4, .5" rain. 5-7, clear. 8-10, 1.0" rain. 10-11, clear. 12, 1.0" rain. 13-14, clear. 15-16, .5" rain. 17, clear. 18-20, .5" rain. 21-22, clear. 23-24, 1.0" rain. 25-26, clear. 27-29, .5" rain. 30, clear.

Dec. 1969: Daily ave. temp. 41° normal). Precip. 5" — 1" below normal. 1-3, clear. 4-5, 1.0" rain. 6-7, clear. 8-9, .5" rain. 10, clear. 11-12, .5" rain. 13-14, clear. 15-18, 1.0" rain. 19-21, clear. 22-26, 1.5" rain. 27-28, clear. 29-31, .5" rain.

Jan. 1970: Ave. daily temp. will be at 42°, 3° above the normal 39°. Precip. will be, at 5" (incl. 3" snow), about 17% below normal (6"). 1, clear. 2-4, .5" prec. 1" snow. 5, clear. 6-8, 1.0" rain. 9-10, clear. 11-15, .5" rain. 16, clear. 17-19, 1.0" prec. 1" snow. 20, clear. 21-23, .5" rain. 24, clear. 25-27, 1.0" rain. 1" snow. 28, clear. 29-31, .5" rain.

Feb. 1970: Ave. daily temp. will be, at 48°, 5° above the normal 43°. Precip. at 4" will, with 5" of snow, be 20% below the normal 5". 1-2, clear. 3-4, .25" rain. 5-6, .5" prec. 1" snow. 7, clear. 8-10, .5" rain. 11, clear. 12-18, .5" prec. 1" snow. 19, clear. 20-22, 2.0" prec. 3" snow. 23-26, clear. 26-28, .25" rain.

Mar. 1970: Ave. daily temp. of 46° is normal. Precip. of 5" is 20% above the normal 4". 1, clear. 2-4, 1" prec. 3" snow. 5, clear. 6-8, 1.0" prec. 1" snow. 9-12, clear. 13-15, 1.0" prec. 1" snow. 16-20, clear. 21-26, 2.0" rain. 27-31, clear.

Apr. 1970: Ave. daily temp. of 54° is 4° above the normal 50°. Precip. of 1" is 50% below the normal 2". 1-3, clear. 4-6, .2" rain. 7-9, clear. 10-12, .2" rain. 13-15, clear. 16-18, .2" rain. 19, clear. 20-22, .2" rain. 23, clear. 24-26, .2" rain. 27-30, clear.

May 1970: Ave. daily temp. of 61° is 4° above the normal 57°. Precip. of 1" is 50% below the normal 2". 1-3, clear. 4-6, .2" rain. 7, clear. 8-11, .1" rain. 12-13,

clear. 14-17, .2" rain. 18, clear. 19-21, .2" rain. 22, clear. 23-25, .1" rain. 26-27, clear. 28-30, .2" rain. 31, clear.

June 1970: Ave. daily temp. of 63° is 4° above the normal 59°. Precip. at 1", however, is 50% below the normal 2". 1-2, clear. 3-5, .2" rain. 6, clear. 7-9, .1" rain. 10-13, clear. 14-15, .1" rain. 16-17, clear. 18-20, .3" rain. 21-22, clear. 23-25, .2" rain. 26, clear. 27-29, .1" rain. 30, clear.

July 1970: Ave. daily temp. of 67° is 2° above the normal 65°. Precip. of 1" is double the normal .5". 1-4, .2" rain. 5, clear. 6-8, .2" rain. 9-13, clear. 14-20, .3" rain. 21-23, clear. 24-27, .2" rain. 28-29, clear. 30-31, .1" rain.

Aug. 1970: Ave. daily temp. 68° is 3° above the normal 65°. Precip. of 1" is normal. 1-2, clear. 3-5, .2" rain. 6-10, clear. 11-14, .2" rain. 15, clear. 16-18, .2" rain. 19-25, clear. 26-28, .2" rain. 29, clear. 30-31, .2" rain.

Sept. 1970: Ave. daily temp. 68° is 5° above the normal 63°. Precip. at 2" is normal. 1-4, clear. 5-7, .4" rain. 8, clear. 9-11, .4" rain. 12, clear. 13-16, 1.2" rain. 17-20, clear. 21-25, .8" rain. 26-27, clear. 28-30, .8" rain.

Oct. 1970: Ave. daily temp. 56° is 2° above the normal 54°. Precip. at 3" is 25% below the normal 4". 1-2, .5" rain. 3-4, clear. 5-8, .5" rain. 9-12, clear. 13-16, 1.5" rain. 17-22, clear. 23-26, .5" rain. 27-31, clear.

Nov. 1970: Ave. daily temp. of 51° is 2° above the normal 49°. Precip. of 5" is about 15% below the normal 6". 1-2, .5" rain. 3-4, clear. 5-6, .5" rain. 7, clear. 8-9, .5" rain. 10, clear. 11-13, 1.5" rain. 14, clear. 15-17, .5" rain. 18, clear. 19-20, .5" rain. 21, clear. 22-24, .5" rain. 25, clear. 26-29, .5" rain. 30, clear.

Dec. 1970: Ave. daily temp. of 42° is 2° above the normal 40°. Precip. of 3" is 50% below the normal of 6". 1-3, clear. 4-6, .5" rain. 7-9, clear. 10-14, 1.0" rain. 15-16, clear. 17-18, .5" rain. 19-21, clear. 22-24, .5" rain. 25-27, clear. 28-30, .5" rain. 31, clear.

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Medicine Hat, Alberta, Canada.

THE TOWN THAT DID NOT CHANGE ITS NAME OR ITS WEATHER

On December 22, 1910 the two letters reprinted below appeared in the Medicine Hat News. They were preserved by the late George P. Winship in an imprint from his *At The Sign of The George Press* in an effort to "check the increasingly widespread tendency toward Universal Conformity."

Dear Mr. Kipling,—

I am aware, in fact all of us in Medicine Hat are aware, of the interest you took in our little city in your two trips across the continent.

Of course you have very many things to think about, but I am going to be importunate about a certain matter which is vexing our souls here, for not only have you been kind enough to show your interest locally, but we look to you as the Father Confessor of the Empire, and ask you to help us poor stragglers with advice, who are living on the distant frontier. You know, no doubt, that the name of our city is a translation of the old Cree name of the place. It is rich in Indian traditions, eloquent with war-songs of the Black Feet and the Cree, of which I will not bore you.

Besides this, to us 'Old Timers,' the name has grown warm in our hearts, here we have courted our sweet-hearts, married and begot children, and have built our homes, driving our tent pegs deep into Mother Earth, and are going to remain here to hold up the old British traditions as long as the good God gives us breath.

Well, unfortunately, some newcomers, Sons of Belial (who knew not Joseph) have arisen and WANT TO CHANGE THE NAME OF THE CITY.

It smacks too much of the Injin, smells fearfully of the tee-pee fire, and Kini-ki-nick—reminds outsiders of the whacking lies (may God forgive them) of the U.S.A. newspaper men in regard to our weather, and so forth. In a moment of weakness, our city fathers have decided to submit the question to the vote of the rate payers instead of ordering the proposers to be cast into a den of burning fiery rattlesnakes.

Can you help us with a few words of encouragement in combating these heretics? Your influence here is great. If it is shown that you are against the proposition, it will help us materially.

Apologizing for this long letter, I remain, Dear Sir,
Yours faithfully,

Francis F. Fatt

Bateman's, Burwash, Sussex
December 9, 1910

Dear Sir,—

I have received your letter of the 22nd November which interests me intensely, both as a citizen of the Empire and as a lover of Medicine Hat.

You tell me that a public vote is to be taken on the question of changing the city's name. So far as I can make out from what I heard

when I was with you in 1907 and from the clippings you enclose the chief arguments for the change are (a) that some U.S. journalists have some sort of joke that Medicine Hat supplies all the bad weather of the United States, and, (b) that another name would look better at the head of a prospectus.

Incidentally I note both arguments are developed at length by the Calgary Herald. I always knew that Calgary called Medicine Hat names, but I did not realize that Medicine Hat wanted to be Calgary's little god-child.

Now as the charge of brewing bad weather etc., I see no reason on earth why white men should be bluffed out of their city's birthright by an imported joke. Accept the charge joyously and proudly, and go forward as Medicine Hat—the only city officially recognized as capable of freezing out the United States and giving the continent the cold feet.

Let us examine the name—Medicine Hat—I haven't my maps by me but I seem to remember a few names of places across the border such as Schenectady, Podunk, Schoharie, Poughkeepsie, Potomac, Cohoes, Tonewanda, Oneonoto, etc. all of which are rather curious to the outsider, but times and the lives of men (it is people and not prospectuses that make cities) have sanctified the queer syllables with memories and associations for millions of our fellow creatures. Once on a time these places were young and new and in process of making, themselves. That is to say they were ancestors, with a duty to posterity, which duty they fulfilled in handing on their names intact: and Medicine Hat is today an ancestor—not a derivative, nor a collateral, but the founder of a line.

To my mind the name Medicine Hat has an advantage over all the names I have quoted. It echoes, as you so quaintly put it, of the old Cree and Blackfoot traditions of red mystery and romance that once filled the prairies. Also, it hints, I venture to think, at the magic that underlies the city, and as years go on, it will become more and more of an asset. It has no duplicate in the world; it makes men ask questions; and as I knew more than twenty years ago, draws the feet of the young men towards it: it has the qualities of uniqueness, individuality, assertion, and power. Above all, it is the lawful, original, sweat-and-dust-won name of the city and to change it would be to risk the luck of the city, to disgust and dishearten Old-Timers, not in the city alone, but the world over, and to advertise abroad the city's lack of faith in itself. Men do not think much of a family that has risen in the world changing its name for social reasons. They think still less of a man who because he is successful repudiates the wife who has stood by him in his early struggles. I do not know what I should say, but I have the clearest notion of what I should think of a town that went back on itself.

Forgive me if I write strongly, but this is a matter of which I feel strongly. As you know, I have not a dollar or a foot of land in Medicine Hat, but I have a large stake of interest and very true affection in and for the city and its folk. It is for this reason that in writing to you I have taken a liberty which to men who have known the city for several months or perhaps three years must seem inexcusable.

In conclusion it strikes me that the two arguments put forward for the change of name are almost equally bad. The second is perhaps a shade worse than the first. In the first case the town would change its name for fear of being laughed at. In the second it sells its name in the hope of making more money under an alias or as the Calgary Herald writes, for the sake of a name that 'has a sound like the name of a man's best girl and looks like business at the head of a financial report.'

But a man's city is a mere trifle more than a man's best girl. She is the living background of his life and love and toil and hope and sorrow and joy. Her success is his success; her shame is his shame; her honor is his honor; and her good name is his good name.

What then should a city be re-christened that has sold its name?—Judasville.

Very sincerely yours
Rudyard Kipling

MEDICINE HAT, Just North of Montana at about 110° Longitude, lies directly in the path of the arctic storms which sweep down from the northern wastelands. Hence, its reputation as a bad weather breeder.

8. SOUTHERN STATES

The times of sunrise, sunset, moonrise, moonset (pages 22-44) and the planets (page 46) are for Boston only. The table below gives the corrections to be used for anywhere in the Southern States. Note the Key Letters for any given day (pages 22-44, 46). Then find the column below in which that Key Letter falls. The figure in that column for the city you seek is the minutes to add or subtract for that city. Example: Jan. 12, sunrise (page 22) is 7:12 A.M. Key Letter N. Key Letter N for Atlanta is +29. So sunrise at Atlanta will be 7:41 A.M., EST. Accuracy will be within 15 min. for Lat. 25-30°, 10 min. for Lat. 30-35°, and 5 min. for Lat. north of 35°. If a city is not listed, interpolate between nearest two cities. (Further explanations appear on pages 92 and 93.)

City	State	Latitude, °	Time Used	Key Letters				
				A-E m	F-H m	I m	J-L m	M-Q m
Birmingham.....	Ala.	33 31	CST	+28	+12	+ 3	- 6	-22
Decatur.....	Ala.	34 30	CST	+26	+12	+ 4	- 4	-19
Mobile.....	Ala.	30 42	CST	+39	+19	+ 8	- 4	- 4
Montgomery.....	Ala.	32 22	CST	+29	+11	+ 1	- 9	-26
Little Rock.....	Ark.	34 45	CST	+47	+33	+25	+17	+ 3
Texarkana.....	Ark.	33 30	CST	+57	+41	+32	+23	+ 7
Jacksonville.....	Fla.	30 20	EST	+75	+54	+42	+30	-10
Miami.....	Fla.	25 47	EST	+79	+52	+37	+21	- 6
Pensacola.....	Fla.	30 25	EST	+97	+77	+65	+53	+33
St. Petersburg.....	Fla.	27 46	EST	+84	+60	+46	+32	+ 8
Tallahassee.....	Fla.	30 30	EST	+85	+65	+53	+41	+21
Tampa.....	Fla.	27 57	EST	+83	+59	+46	+32	+ 8
W. Palm Beach.....	Fla.	26 46	EST	+76	+50	+36	+21	- 5
Atlanta.....	Ga.	33 45	EST	+78	+62	+53	+44	+29
Augusta.....	Ga.	33 28	EST	+69	+52	+44	+35	+17
Columbus.....	Ga.	32 28	EST	+77	+67	+56	+44	+28
Macon.....	Ga.	32 50	EST	+77	+62	+50	+39	+24
Savannah.....	Ga.	32 05	EST	+68	+50	+40	+30	+12
Covington.....	Ky.	39 07	EST	+64	+57	+54	+50	+44
Lexington-Frankfort..	Ky.	38 03	EST	+67	+59	+54	+50	+41
Louisville.....	Ky.	38 15	EST	+17	+63	+59	+54	+46
Alexandria.....	La.	31 16	CST	+56	+36	+26	+14	- 5
Baton Rouge.....	La.	30 27	CST	+53	+32	+20	+ 9	-12
Lake Charles.....	La.	30 15	CST	+61	+40	+28	+17	- 4
Monroe.....	La.	32 30	CST	+51	+34	+24	+14	- 3
New Orleans.....	La.	29 57	CST	+49	+28	+16	+ 4	-17
Shreveport.....	La.	32 31	CST	+58	+41	+31	+21	+ 3
Biloxi.....	Miss.	30 15	CST	+44	+23	+12	0	-20
Jackson.....	Miss.	32 18	CST	+44	+26	+16	+ 6	-11
Meridian.....	Miss.	32 28	CST	+38	+20	+11	0	-17
Tupelo.....	Miss.	34 18	CST	+34	+19	+10	- 2	-13
Asheville.....	N. C.	35 36	EST	+66	+53	+46	+39	+26
Charlotte.....	N. C.	35 13	EST	+60	+46	+39	+32	+18
Durham.....	N. C.	36 00	EST	+50	+38	+31	+25	+13
Greensboro.....	N. C.	36 04	EST	+53	+41	+35	+28	+16
Raleigh.....	N. C.	35 47	EST	+50	+37	+30	+23	+11
Wilmington.....	N. C.	34 12	EST	+51	+36	+27	+19	+ 4
Charleston.....	S. C.	32 47	EST	+62	+45	+35	+26	+ 9
Columbia.....	S. C.	34 00	EST	+64	+48	+40	+31	+16
Spartanburg.....	S. C.	34 57	EST	+65	+51	+43	+36	+22
Chattanooga.....	Tenn.	35 03	EST	+78	+65	+57	+49	+36
Knoxville.....	Tenn.	35 58	EST	+70	+58	+51	+45	+33
Memphis.....	Tenn.	35 09	CST	+37	+23	+16	+ 8	- 5
Nashville.....	Tenn.	36 10	CST	+21	+ 9	+ 3	- 4	-15
Amarillo.....	Tex.	35 12	CST	+84	+70	+63	+56	+42
Austin.....	Tex.	30 16	CST	+79	+58	+47	+35	+14
Beaumont.....	Tex.	30 05	CST	+65	+44	+32	+20	- 1
Corpus Christi.....	Tex.	27 48	CST	+83	+59	+45	+31	+ 7
Dallas-Fort Worth....	Tex.	32 47	CST	+72	+55	+45	+35	+18
El Paso.....	Tex.	31 46	CST	+111	+92	+82	+71	+52
Galveston.....	Tex.	29 18	CST	+70	+48	+35	+22	0
Houston.....	Tex.	29 45	CST	+71	+49	+37	+25	+ 3

From page 101

Dec. 1970: Ave. daily temp. of 30° is 4° below the normal 34°. Precip. of 1", incl. 5" snow, is only one-third the normal 3". 1-3, clear. 4-6, .1" rain. 7-9, clear. 10-14, .5" rain. 15-16, clear. 17-18, .2" prec. 2" snow. 19-21, clear. 22-24, .1" prec. 2" snow. 25-27, clear. 28-30, .1" prec. 1" snow. 31, clear.

From page 111

Dec. 1970: Ave. daily temp. of 33° is 1° above the normal 32°. Precip. of 2", incl. 6" snow, is double the normal 1". 1-3, clear. 4-6, .3" rain. 7-9, clear. 10-14, .8" rain. 15-16, clear. 17-18, .3" prec. 3" snow. 19-21, clear. 22-24, .3" prec. 2" snow. 25-27, clear. 28-30, .3" prec. 1" snow. 31, clear.

8. SOUTHERN STATES WEATHER FORECAST

Verification Base: Atlanta, Georgia. However, this forecast should quite generally cover the Southern States, except possibly Florida and Northern Texas which have special climates all their own. The Winter doesn't mean too much in the South, except for migrant tourists who go there to enjoy reading about the storms going on up North. However, the summary for Nov.-Apr. is included — just in case.

THE WINTER (NOV. 1969-APR. 1970) will be 1° warmer — i.e. 51° average monthly temperature vs. 50° normal. There will be one inch less rain — i.e. 27" total vs. 28" normal.

THE YEAR (JAN.-DEC. 1970) will have normal temperatures (62° average monthly), but the rain will be some 8" less (47") than the 55" normal total.

Nov. 1969: Daily temp. will run 1° higher — i.e. 53° vs. 52° normal. It will rain 1" less — i.e. 2" instead of 3" normal. 1-2, clear. 3-5, .2" rain. 6-7, clear. 8-9, .4" rain. 10-11, clear. 12, .4" rain. 13-14, clear. 15-16, .2" rain. 17-18, clear. 19-20, .2" rain. 21-22, clear. 23-24, .3" rain. 25-26, clear. 27-29, .1" rain. 30, clear.

Dec. 1969: Daily ave. temp. will be at 46°, 1° above the normal 45° and precip. at 6", 1" above the normal 5". 1-3, clear. 4-5, 1.2" rain. 6-7, clear. 8-9, .6" rain. 10, clear. 11-12, .6" rain. 13-14, clear. 15-18, 1.2" rain. 19-21, clear. 22-26, 2.0" rain. 27-28, clear. 29-31, .4" rain.

Jan. 1970: Daily ave. temp. at 41° is 2° below normal 43°. Precip. at 3" is 50% below the normal 6". 1, clear. 2-4, .3" rain. 5, clear. 6-8, .6" rain. 9-10, clear. 11-15, .3" rain. 16, clear. 17-19, .6" rain. 20, clear. 21-23, .3" rain. 24, clear. 25-27, .6" rain. 28, clear. 29-31, .3" rain.

Feb. 1970: Daily ave. temp. of 46° is normal. Precip. of 4" is 20% below the normal 5". 1, clear. 2-4, .25" rain. 5, clear. 6-7, .5" rain. 8, clear. 9-10, .5" rain. 11, clear. 12-18, .5" rain. 19, clear. 20-22, 2.0" rain. 23-25, clear. 26-28, .25" rain.

Mar. 1970: Daily ave. temp. of 55° is 3° above the normal of 52°. Precip. of 8" is 33% above the normal 6". 1, clear. 2-4, 2.0" rain. 5, clear. 6-8, .8" rain. 9-12, clear. 13-15, 2.0" rain. 16-20, clear. 21-26, 3.2" rain. 27-31, clear.

Apr. 1970: Ave. daily temp. of 63° is 2° above the normal 61°. Precip. of 4" is normal. 1-3, clear. 4-6, .8" rain. 7-9, clear. 10-12, .8" rain. 13-15, clear. 16-18, .8" rain. 19, clear. 20-22, .8" rain. 23, clear. 24-26, .8" rain. 27-30, clear.

May 1970: Ave. daily temp. of 69° is 1° below the normal 70°. Precip. of 2" is 50% below the normal 4". 1-3, clear. 4-6, .4" rain. 7, clear. 8-11, .2" rain. 12-13, clear. 14-17, .4" rain. 18, clear. 19-21, .4" rain. 22, clear. 23-25, .2" rain. 26-27, clear. 28-30, .8" rain. 31, clear.

June 1970: Ave. daily temp. of 76° is 1° below the normal 77°. Precip. 5" is 25% above the normal 4". 1-3, clear. 3-5, 1.0" rain. 6, clear. 7-9, .5" rain. 10-13, clear. 14-15, .5" rain. 16-17, clear. 18-20, 1.0" rain. 21-22, clear. 23-25, 1.5" rain. 26, clear. 27-28, .5" rain. 29-30, clear.

July 1970: Ave. daily temp. at 81° is 2° above the normal 79°. Precip. at 7" is 2" above the 5" normal. 1-4, 1.4" rain. 5, clear. 6-8, 1.4" rain. 9-13, clear. 14-20, 2.1" rain. 21-23, clear. 26-27, 1.4" rain. 28-29, clear. 30-31, .7" rain.

Aug. 1970: Ave. daily temp. at 79° is 1° above the normal 78°. Precip. is, at 3", 25% below the normal 4". 1-2, clear. 3-5, .6" rain. 6-10, clear. 11-14, .6" rain. 15, clear. 16-18, .6" rain. 19-25, clear. 26-28, .2" rain. 29, clear. 30-31, .2" rain.

Sept. 1970: Ave. daily temp. at 73° is normal. Precip. at 5" is 25% above the normal 4". 1-4, clear. 5-7, 1.0" rain. 8, clear. 9-11, 1.0" rain. 12, clear before a storm of hurricane proportions with 3.0" rain (at least) reaching into Fla. and/or Texas between the 13th and 16th. 17-20, clear. 21-25, 2.0" rain. 26-27, clear. 28-30, 2.0" rain.

Oct. 1970: Ave. daily temp. of 65° is 2° above the normal 63°. Precip. at 3" is normal. 1-2, .6" rain. 3-4, clear. 5-8, .6" rain. 9-12, clear. 13-16, 1.2" rain. 17-22, clear. 23-26, .6" rain. 27-31, clear.

Nov. 1970: Ave. daily temp. of 53° is 1° above the normal 52°. Precip. of 1" is only one-third the normal 3". 1-2, .1" rain. 3-4, clear. 5-9, .2" rain. 10, clear. 11-13, .3" rain. 14, clear. 15-17, .1" rain. 18, clear. 19-20, .1" rain. 21, clear. 22-24, .1" rain. 25, clear. 26-29, .1" rain. 30, clear.

Dec. 1970: Ave. daily temp. of 43° is 2° below normal. Precip. of 2" is 60% below the normal 5". 1-3, clear. 4-6, .3" rain. 7-9, clear. 10-14, .8" rain. 15-16, clear. 17-18, .3" rain. 19-21, clear. 22-24, .3" rain. 25-27, clear. 28-30, .3" rain. 31, clear.



THE GREAT QUAKE OF 1886 AT CHARLESTON, S. C.

by Donald W. Lewis

Charleston, South Carolina's memorable Tuesday, August 31, 1886, began reasonably calm with a warm, still sunny morning. The evening failed to cool, the mellow brick walls retaining the day's heat. The Ashley and Cooper Rivers were dead calm, mirroring the constellations in the clear sky. Dance music drifted from the pavilion on James Island where young people socialized. The heat had tired the aged, and they were either in bed or about to retire.

Shortly before 10 p.m., guests on the upper floors of the Hotel Leland in Chicago, feeling an uneasy sway in the floor, sat up in bed and saw cracks appear in the walls. Simultaneously, a vocalist in Cleveland at the Academy of Music was just singing the first measure of a song and was stunned to see his entire audience rise simultaneously and rush out. In New York City vibrations moved the steeple of the Bedford Avenue Church, sounding the bells.

At the Richmond, Virginia penitentiary, prisoners were so alarmed that guards and officials feared a panic. Convicts beat upon cell doors and insisted upon being let out. Some of them were released into the prison yard. Fearing a breakout, prison officials summoned the military. In the town, it was rumored that the prison walls had collapsed, permitting prisoners to escape into the city.

In Raleigh, North Carolina, shocks were strong enough to ring doorbells. In Atlanta, Georgia, Negroes fell upon their knees, wept, and pleaded for mercy. They were certain it was the Judgment Day. In Cincinnati, Ohio, a young man residing at the Lombardy Flats was taking a bath on an upper floor. When the shocks came, he jumped from the tub and ran naked to the street with his clothes on his arm.

The cause of all this excitement began in Charleston, South Carolina, where at exactly 9:51 p.m., twelve miles below the surface, and sixteen miles west, the earth ruptured in a mountain system extending to within a few miles west of New York City. With vibrations racing three miles a second, shock waves sped out over 2,800,000 square miles—hitting Chicago, Birmingham, New York City, Boston, Baltimore; from Canada to the Gulf of Mexico, from Florida Straits to Cuba, and from Bermuda westward into Iowa, Missouri, and Arkansas. Windows were broken even as far away as Milwaukee.

At the Charleston Hotel, already without lights, a mighty earth wave lifted the building and rocked it violently, producing the terrifying roar of falling walls and thundering timbers. Downstairs the lobby was a jumble of wreckage, and the air was suffocating with plaster dust.

Captain Dawson of the Charleston NEWS AND COURIER later wrote, "The house (brick residence) seemed literally to turn on its axis. The first shock was followed by a second and a third, less severe than the first. The air was filled with the cries and shrieks of women and children. From every side of that normally quiet neighborhood came the cry, 'God save us,' 'Oh, my God,' and 'God help us.'"

Terrified, screaming thousands fought their way out of buildings. The ground opened in ragged gashes, mud and water spurting forth. A sulphurous odor filled the air—the very emanation of Hell.

"It's the end of the world!" came some cries.

Half a block up Market Street, a tall chimney swayed gracefully over the pavement and thundered to rubble.

"Fire . . . my house is on fire!"

At scattered points cookstoves were overturned, oil lamps upset, and live embers started raging fires.

Broken water mains and totally blocked streets prevented firemen

from reaching or dousing most fires. But wherever entrance was possible, fire was fought with every means available.

Until Midnight, there were four more shocks, followed by the roar of crumbling walls. Thousands of men, women, and children rushed to Marion Square, Hampstead Mall, Washington Square, and Battery Park, joining together in hymns and prayers.

A Catholic priest, commenting on this scene, said, "After the first and severe shock, Catholics immediately rushed for their churches. As soon as I felt the shock, I ran for the yard. In the streets were thousands of Catholics who wanted to enter the church. I closed and locked the iron gates, keeping the crowd from entering the church which I feared might fall any moment."

Doctors were quickly mobilized, and four ships, anchored in the estuary with equipment salvaged from the demolished Charleston Medical College, served as temporary hospitals and morgues. Small groups of rescuers began searching ruined blocks for the dead and injured, who numbered into thousands.

Throughout the night, there were rumors of imminent destruction. At 2 a.m. shocks were felt again as more buildings collapsed.

Wednesday's dawn brought comfort, reassurance—and scenes of destruction. Most of the buildings along Market Street were totally destroyed, and Hanes Street was partially leveled. The Hibernian Hall had lost its front, the Courthouse was a wreck, by actual count 14,000 chimneys lay in the streets, the railroad was wrecked, not one telephone or telegraph wire remained in commission, and buildings founded on compact, natural earth were shattered.

Attorney Julian M. Bacot of 169 Coming Street vividly recorded the scene in his diary: "The streets were a picture of woe, ruin, and despair, covered with ruins of shattered buildings and the whole lit up by five or six large fires in as many different directions of the city and the cries of women and children mingled with the shrieks of the wounded, the groans of the crying, and the frantic supplications of the Negroes, who were wild with terror."

On the north side of town, a Negro family which slept soundly throughout the night of terror were astonished when they surveyed their surroundings the next morning.

But the worst destruction was twelve miles west of Charleston, between Woodstock and Rantowles, where frame buildings were demolished, cracks appeared in the soil, and large quantities of water and sand were ejected from fissures and craterlets. One such crater measuring twenty-one feet across was found at Ten Mile Hill on the South Carolina Railway. Here bolts were sheared off, ties dragged or split, rails torn or kinked, and a train derailed, overturned, and wrecked.

By late afternoon, a single telegraph wire was operating, and news from the concerned, outside world told Charleston it was the focus of national attention. Clara Bafton, president of the Red Cross Society, paid a personal visit to inspect provisional hospital facilities and donated \$500. Queen Victoria cabled England's sympathies to President Grover Cleveland. Western Union quickly offered to send money to stricken Charleston, and a total of more than \$645,000, including almost \$20,000 from foreign countries was sent in for the city's rehabilitation.

At 1:30, 5:00, and 8:20 p.m., workers and watchers felt other tremors as vibrations toppled loose masonry. Few people strayed from the comparative safety of open spaces.

People began returning to their homes Thursday to survey the damage. Dangerous areas were roped off, several stores opened, and food was available for the first time since Tuesday. But at 11 p.m. the eleventh shock hit, followed by another night of wakeful attention.

Friday was a day of hard labor, and thousands patiently gathered in open spaces for further shocks that night. At precisely 11 p.m. there was merely a tremor; however, there was little disagreement that it was another shock. There had been an eleventh shock at the eleventh hour on Thursday, and this new one at the eleventh hour Friday indicated to many that this was an omen. Finally those who still had a home, a bed and a roof returned to sleep—undisturbed.

One of America's most severe earthquakes was over—exceeding in intensity and magnitude San Francisco's a generation later. What had previously been considered an absurd impossibility for the Atlantic Coast was a reality. A total of seventeen shocks had destroyed more than 100 Charleston buildings, 90 per cent of Charleston's brick structures. National destruction totaled \$5,000,000 to \$6,000,000. Most astonishingly, however, only forty people lost their lives; twenty-seven were from Charleston's population of 53,000.

MOON WEATHER TABLE, For foretelling the Weather through all the lunations of each year, forever.

This table, and the accompanying remarks, are the result of many years' actual observation, the whole being constructed on a due consideration of the attraction of the sun and moon, in their several positions respecting the earth, and will, by simple inspection, show the observer what kind of weather will most probably follow the entrance of the moon into any of its quarters, and that so near the truth as to be seldom or never found to fail.

This weather table will answer very well for anywhere in the United States. It is taken from the 1849 issue of The Old Farmer's Almanac and was widely used before the advent of the Weather Bureau. Do not be surprised if the forecasts arrived at by this table do not agree with those on other pages. THE OFA goes by many factors besides the moon.

WEATHER TABLE FOR ANYWHERE

Moon	Time of Change	In Summer	In Winter
If the new moon, 1st quarter, full moon, or last quarter happens.	From Midnight to 2 A.M.	Fair	Hard frost, unless wind be S. or W.
	From 2 A.M. to 4 A.M.	Cold, with frequent showers	Snow and stormy
	From 4 A.M. to 6 A.M.	Rain	Rain
	From 6 A.M. to 8 A.M.	Wind and Rain	Stormy
	From 8 A.M. to 10 A.M.	Changeable	Cold Rain if wind be W.; Snow if E.
	From 10 A.M. to Noon	Frequent Showers	Cold & high wind.
	From Noon to 2 P.M.	Very rainy	Snow or rain.
	From 2 P.M. to 4 P.M.	Changeable	Fair & mild.
	From 4 P.M. to 6 P.M.	Fair	Fair.
	From 6 P.M. to 8 P.M.	Fair — if wind N.W. Rain — if S. or S.W.	Fair & frosty if wind N. or N.E.: Rain or snow if wind S. or S.W.
	From 8 P.M. to 10 P.M.	Same as from 6 P.M. to 8 P.M.	
	From 10 P.M. to Midnight	Fair	Fair & frosty.

Observations. — 1. The nearer the moon's changes, first quarter, full, and last quarter are to *midnight*, the fairer will it be during the next seven days.

2. The space for this calculation occupies from ten at night till two next morning.

3. The nearer to *midday*, or *noon*, the phases of the moon happen, the more foul or wet weather may be expected during the next seven days.

4. The space for this calculation occupies from ten in the forenoon to two in the afternoon. These observations refer principally to the summer, though they affect spring and autumn nearly in the same ratio.

5. The moon's change, first quarter, full and last quarter, happening during six of the afternoon hours, i.e., from four to ten, may be followed by fair weather; but this is mostly dependent on the *wind*, as is noted in the table.

6. Though the weather, from a variety of irregular causes, is more uncertain in the latter part of autumn, the whole of winter, and the beginning of spring, yet, in the main, the above observations will apply to those periods also.

7. To prognosticate correctly, especially in those cases where the *wind* is concerned, the observer should be within sight of a good *vane*, where the four cardinal points of the heavens are correctly placed.

The above table was originally formed by Dr. Herschell, and is now published with some alterations founded on the experience of Dr. Adam Clarke.

TO THE WEATHER-WISE

M. Toalda of Padua (circa 1720) asserted that the weather changes most often (85.8% of the time) when the new moon comes in; 83.4% with the full, and 66.7% with the other two phase changes. Recent studies by scientists with the U.S.W.B. and N.Y.U. show heaviest rainfall comes 3 to 5 days after the new and the full moons.

Many blossoms on plum trees in the Spring, heavy fruit crops in the Fall, oak (and other) leaves remaining on trees in December indicate a severe Winter is coming up. The thickness of Fall fur on most animals, goose bones, pigs' melts, distance between caterpillar stripes also are Winter predictors. Birds, particularly owls, pileated woodpeckers, and swallows are predictors — as is, of course, the woodchuck. When hornets build nests high off the ground, expect deep snows. Bees, spiders, and ants — as well as certain flowers — are useful as short-term predictors. Nature, on the whole, however, is not easily understood and birds and animals, who should know, are often as misled by her as is mankind.

STATE EXTENSION DIRECTORS

Consult these men about your garden and farm problems. They know the answers. *Courtesy Ralph M. Fulghum, Assistant Director, Information Services, U.S. Dept. of Agriculture, Washington, D.C. 20250.*

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Indiana:	H. G. Diesslin, Purdue University, Lafayette 47907.
Iowa:	M. A. Anderson, Iowa State University, Ames 50010.
Kansas:	R. A. Bohannon, Kans. State Univ., Manhattan 66502.
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New Jersey:	J. L. Gerwig, Rutgers Univ., New Brunswick 08903.
New Mexico:	P. J. Leyendecker, N. M. State U., Univ. Park 88070. *A. E. Triviz (A.D.)—Same address.
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North Dakota:	A. H. Schulz, N. D. State Univ., Fargo 51802
Ohio:	R. M. Kottman, Ohio St. Univ., 2120 Fyffe Rd., Columbus 43210.* E. L. Kirby (A.D.)—Same add.
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Wyoming:	N. W. Hilston, Univ. of Wyo., Box 3354, Univ. Sta., Laramie 82070.

Courtesy
American Automobile
Association

Auto Laws

1969

State	Max. Speed Open Hwy. (R-Reasonable)	Date Regis. Ex-pires (Incl. Grace)	Driving License Mini- mum Age	Gasoline Tax	Per Cent Sales Tax	Non-R. Days Stay ¹ (R-Reciprocal)	Min. Cost of Regis. (3M lbs.-100 HP)	Cost Term Driver's License	Chem. Test Law
Ala....	60-50N	11/15	16h	\$.07	1½	30	\$13.75	\$4.25-2Y	B
Alaska	50	5/31	1fa	.08	—	90	30.00	5.00-3Y	B
Ariz....	50-45N	3/1	18a	.07	3	180 ⁴	6.25	2.50-3Y	A
Ark....	60	2	14ac	.075	3	90 ⁵	12.00	4.00-2Y	A
Cal....	65	12/31	16f	.07	4†	2	11.00†	3.00-3Y	C
Colo....	60	2/28	21e	.06	3	30	7.10	2.25-3Y	C
Conn....	R	2	16eft	.07	3½	60	10.00	6.00-2Y	C
Del....	60	2	16	.07	—	90	20.00	4.00-2Y	A
D.C....	R	3/31	16a	.07	3	R1	22.50	3.00-3Y	A
Fla....	65-55N	7/20	16aj	.07	3	R	22.22	3.00-2Y	C
Ga....	60-50N	4/1	16h	.065	3	30	5.00†	2.50-2Y	C
Haw....	45	3/31	15i	.085-11	—	10 or ³	22.50†	4.00-4Y	A
Ida....	60-55N	12/31	16g	.07	3	—	17.50†	6.00-3Y	C
Ill....	65	3/1	16k	.06	4¼	R	24.00	8.00-3Y	A
Ind....	65	2/28	16†	.06	2	60	12.00	1.50-2Y	A
Iowa....	70-60N	1/31	16g	.07	3	R	12.00†	5.00-2Y	C
Kan....	70-60N	2/15	16g	.05	3	R	10.00	3.00†	C
Ky....	60-50N	3/1	16a	.07	5	R	12.50	3.00-2Y	A
La....	60	2	15	.07	2	R	6.00-2Y	2.50-2Y	C
Me....	45	2/28	15h-17	.07	4½	R	15.00	5.00-2Y	A
Md....	50	3/31	16fk	.07	3	30	20.00	7.00-2Y	A
Mass....	R	12/31	16½fa	.065	3	R	6.00	10.00-4Y	A
Mich....	65-55N	2/28	16afg	.07	4	90	16.50	6.00-3Y	A
Minn....	65-55N	3/1	16ef	.07	3	R	5.25†	3.00-4Y	C
Miss....	65	10/31	15	.07	2	30	12.00	5.00-2Y	B
Mo....	65-60N	2	16j	.05	3	—	37.50	2.00-3Y	C
Mont....	R-55N	2/15	15ae	.065	1½†	60	10.50	4.00-2Y	A
Nebr....	65-60N	2/28	16gm	.075	2½	R	9.00	6.00-4Y	C
Nev....	R	12/31	16n	.06	3	2	5.50	3.00-5Y	A
N.H....	60	3/31	18f	.07	—	R	15.00	10.00-2Y	C
N.J....	50	2	17o	.07	3	60	18.00	4.00-1Y	C
N.M....	70-60N	3/2	16	.07	1½	30	30.00†	3.25-2Y	B
N.Y....	60	2	18bp	.07	2	30	22.50	5.00-3Y	C
N.C....	55	2/15	16af	.07	1½	R	11.00	3.75-4Y	D
N.D....	60	12/31	16u	.06	3	R	32.00	3.00-1Y	C
Ohio....	60-50N	4/15	16e	.07	4	R	10.00	4.00-3Y	C
Okla....	65-55N	1/31	16d	.065	2	60	21.15†	6.00-2Y	C
Ore....	55	2	16g	.07	—	2	10.00	3.00-2Y	C
Pa....	55	3/31	18b	.07	6	R	10.00	4.00-2Y	A
R.I....	50-45N	3/31	16	.08	5	R	11.00	8.00-2Y	C
S.C....	60-55N	10/31	16h	.07	3	—	5.30	2.00-4Y	A
S.D....	70-60N	3/31	16g	.06	3	60	17.00	3.00-4Y	C
Tenn....	65-55N	3/31	16g	.07	3†	30	18.50	4.00-2Y	A
Tex....	70-65N	4/1	16g	.05	3	R	12.30	2.00-2Y	B
Utah....	R	2/28	16	.06	3½	—	6.00	5.00-4Y	C
Vt....	50	2/28	18b	.08	4	R	32.00	6.00-2Y	C
Va....	55	4/15	18ad	.07	2	60	15.00	7.00-3Y	C
Wash....	60	1/30	16df	.09	4.5	60	8.60†	4.00-2Y	A
W. Va....	55	6/30	16as	.07	3	30	20.00	5.00-4Y	A
Wis....	65-55N	2	16g	.07	3	R	18.15†	5.00-2Y	A
Wyo....	65	3/1	16kt	.06	3	15	7.50	2.50-3Y	A

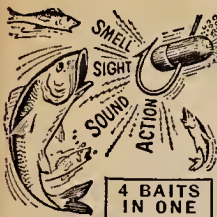
¹Applies to non-residents. "Reciprocal" means same as home state. Those intending permanent residence must buy new plates and secure new driving license at once. Employment or placing children in public school is to reside permanently. ²Staggered. ³Until expiration of home registration. ⁴Visitor's permit req. after 10 days. ⁵Visitor's permit after 30 days.

(A). State has drunken driving test law. (B). State does not. (C). Law with imp. cons. prov. (D). Same but refusal doesn't auth. license susp.

(a) Under 18 must have consent of par or guard; (b) Jr. p'mt 16; (c) 14-16 need accompaniment by lic. op.; (d) Instruction p'mt 15½; (e) Provisional license to 21; (f) 16-18 app. must have completed driver course; (g) Jr. p'mt 14; (h) Learner's p'mt 15; (i) Under 20 need par./guard consent; (j) Jr. P'mt 15; (k) Under 21 need par./guard consent & proof of fin. responsibility; (l) Visitor's permit req. if stay exc. 14 days; (m) 14-16 accomp. by lic. driver over 21; (n) With consent of par./guard.; (o) 16 for agric. pursuits; (p) Exc. some cities; (q) Provisional lic. 16-18; (r) 15½ if drive course comp.; (s) Under 21 birth cert. or par. sig. req.; (t) Learner's permit not req.; (u) Jr. permit 13-15. †Plus various adj.

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 () 2 pkgs. Screaming Meemy @ \$5.00
 () Send C.O.D. I will pay cost plus C.O.D.
 () Enclosed find \$.....ship prepaid
 () Also send FREE BOOK

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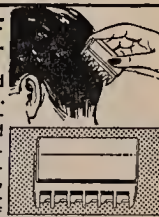
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HALCYON DAYS

The fourteen Halcyon days begin December 11th. The limitation of their number was one of the abuses of the Calendar; but the fact, on which was founded their existence, was the calm weather which at this time of year on the shores of the Mediterranean usually succeeds the blustering winds of the end of Autumn. The reason why these calendar days were called Halcyon or Alcyon requires some further explanation. Alcyone was the daughter of Aeolus; she married herself to Ceyx, who was drowned as he was going to Claros to consult the oracle. The gods apprised Alcyone in a dream of her husband's fate; and when she found on the morrow, his body washed on the seashore,

she threw herself into the sea, and was with her husband changed into birds of the same name, who keep the waters calm and serene, while they build and sit on their nests on the surface of the sea, for the space of seven, eleven, or fourteen days.

* * * *

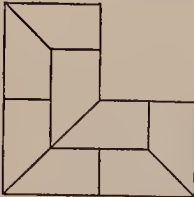
The bird in question was supposed to be the Kingfisher called Linnaeus Alcedo, after the ancients; who so named it because they supposed it to make its nest in midwinter during the Alcyon days, agreeably to the above fable.

Their nests are wonderful — of the figure of a ball rather than elevated, with a very narrow mouth; they look like a large sponge; they have the appearance of petrified sea froth.

ANSWERS TO OLD-FASHIONED PUZZLES ON PAGE 78

(I) 24 minutes. (II) Fill the nine quart container and pour five quarts from it into the five quart container. Empty the five quart container and pour the remaining four quarts from the nine quart container into the five quart container. Fill the nine quart container again and pour one quart out to fill the five quart container. Empty the five quart container and fill it again with five quarts from the eight quarts left in the nine quart container; thus leaving three quarts in the nine quart container.

(III)



(IV) 2519. (V) 18 weeks; \$1872. (VI) 400 children, one lady and 99 men. (VII) 1010 pounds. (VIII) 14,600 men. (IX) Take 10 gallons from the first cask and mix with 4 gallons from the second. (X) Reading diagonally, from left to right, the top row should be 2, 9, and 4; the middle row 7, 5, and 3; the bottom row, 6, 1, and 8.



ANSWERS TO CHARADES, ETC. ON PAGE 79

(I) Eddie Arnold (1) 'ead, head, (2) die, (3) the letter "r" follows "Q", (4) n, inn, (5) old, (6) Eddie Arnold is a well-known recording artist. (II) (1) Mass., (2) O., (3) Ida, (4) Ark., (5) Tenn., (6) Pa., (7) Wash., (8) La., (9) Me., (10) Mont., (11) Md., (12) Ill. (III) the letter "E." (IV) (1) the letter "B" — ox into box, (2) the letter "L" — sea into seal, (3) the letter "S" — hoe into shoe. (4) the letter "L" — ark into lark (5) the letter "B" — one into bone. (V) F-A-R-M. (VI) the postman. (VII) Considering that Bill and Howard had taken a school test on the use of the verb "had," the sentence could go like this: "Bill, where Howard had used the phrase 'had had,' had used the word 'had'; the phrase 'had had' had received the teacher's approval." Therefore, proper punctuation would be as follows: "Bill, where Howard had had 'had had,' had had 'had'; 'had had' had had the teacher's approval." (VIII) (1) One is a stunted hag and the other is a hunted stag. (2) One is a mad bunny and the other is bad money, (3) Because he has lost his locks. (IX) The trick is that he always left on the table either 13, 9 or 5 matches. If I picked up three first, then he would have to watch for an opportunity to leave either 9 or 5 for him. Other than that, he would always pick up just enough to make a total of four — together with what I picked up. (i.e., If I picked up 3, he'd pick up 1). (X) Joe is a midget and can only reach the 17th floor button, but Peter can reach the 20th floor button for him. (XI) "The sailor was 'half seas over,' and was reeling to the lock-up."

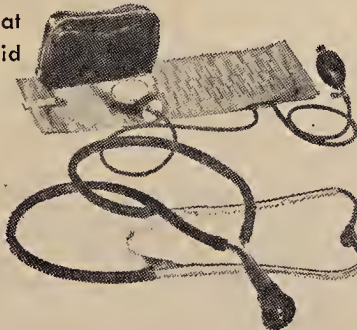
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Postal Laws

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- Books, catalogs (must be of 24 or more pages and substantially bound, with at least 22 pages printed, seeds, cuttings, bulbs, roots, scions and plants, 2 ounces or fraction 5 cents, each added ounce 2 cents.)
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10	43c	60c	66c	76c	87c	1.01	1.17	1.35

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	LOCAL	1 & 2	3	4	5	6	7	8
Pounds								
2	\$0.50	\$0.60	\$0.60	\$0.65	\$0.70	\$0.80	\$0.85	\$0.90
3	.50	.65	.70	.75	.85	.95	1.05	1.15
4	.55	.70	.75	.85	.95	1.10	1.20	1.35
5	.55	.75	.80	.90	1.05	1.25	1.40	1.60
6	.55	.80	.90	1.00	1.15	1.40	1.55	1.75
7	.60	.90	.95	1.10	1.30	1.50	1.75	1.95
8	.60	.95	1.00	1.15	1.40	1.65	1.90	2.15
9	.65	1.00	1.05	1.25	1.50	1.80	2.05	2.35
10	.65	1.05	1.15	1.35	1.65	1.90	2.25	2.55
11	.65	1.10	1.20	1.40	1.75	2.00	2.40	2.75
12	.70	1.15	1.25	1.50	1.85	2.15	2.55	2.90
13	.70	1.20	1.35	1.55	1.95	2.25	2.70	3.10
14	.75	1.25	1.40	1.65	2.05	2.40	2.85	3.25
15	.75	1.30	1.45	1.75	2.15	2.50	3.00	3.45
16	.75	1.35	1.55	1.80	2.25	2.60	3.15	3.60
17	.80	1.40	1.60	1.90	2.35	2.75	3.30	3.80
18	.80	1.45	1.65	1.95	2.45	2.85	3.45	4.00
19	.85	1.50	1.75	2.05	2.55	2.95	3.60	4.15
20	.85	1.55	1.80	2.10	2.65	3.10	3.75	4.35
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DANTE ALIGHIERI

DANTE ALIGHIERI, 1265-1321, is remembered chiefly by his vernacular poem, the *Divine Comedy*. One of the greatest classics of all time, it pictures a journey through Hell and Purgatory, with Virgil as his guide, and through Heaven guided by Beatrice.

Herewith follow some of Dante's imaginative descriptions of The Sun, Moon, Mars, Jupiter, and other worlds, besides our own, in space. The combination of Dante's vision of the inhabited objects in space and artist Gustave Dore's conception of these in his line engravings seems especially interesting in this year when we shall all be hearing more of the moon—and of other planets as well as of space itself.



DANTE VISITS THE MOON

Guided by the spirit of Beatrice, after his arrival in Paradise, Dante visits the Moon, and there meets with Piccarda, the sister of Forese, who tells him that that planet is the abode of those, who after making profession of chastity and a religious life, have been compelled to violate their vows. She alludes more particularly to her own case, and that of Constance, daughter of Ruggieri, King of Sicily, both of whom were forcibly taken out of convents, and married. Although these acts were against their will, they had the effect, according to rigid Catholic doctrine, of excluding the victims from the highest beatitudes of Heaven; but they are blest and happy, in a minor degree, in the lucent fields of the Moon. Of Piccarda a very striking legend is told, though Dante himself does not mention it. It is said that, immediately after her forcible marriage, she recommended herself to Christ for the preservation of her purity, and that in a little while her whole body was smitten with a horrible leprosy, so that in a few days she died.

The opal twilights of the Moon are beautifully rendered by M. Dore, and the figures are full of a sweet and tender grace.



ON MERCURY, DANTE SEES ITS ANGELS

Beatrice ascends with Dante from the Moon to the planet Mercury, which forms the second heaven. The poet here sees a multitude of spirits, one of whom (the sometime Roman Emperor, Justinian) offers to satisfy him on anything he may desire to know.

*"As in a quiet and clear lake the fish,
If aught approach them from without, do draw
Towards it, deeming it their food; so drew
Full more than thousand splendours towards us;
And in each one was heard: 'Lo! one arrived
To multiply our loves!' — and, as each came,
The shadow, streaming forth effulgence here,
Witness'd augmented joy."*

Paradiso, Canto V., lines 97-104

This illustration is a wonderful example of a quality in M. Dore to which allusion has been made in the Introduction to this volume — his power of representing or suggesting infinite space. The great slanting beams, issuing from a glory beyond the reach of the spectator's sight, and the endless procession of angelic figures, floating, bird-like, in a glimmer of white radiance, down the abyss of cloud and air, are splendid triumphs of imaginative art and perfect execution.



DANTE AT THE SUN

In the fourth heaven, which is situated in the sun, Dante sees two wreaths or garlands, each formed of twelve blessed spirits. One of the saints composing the inner ring is Thomas Aquinas, who, addressing the poet, tells him the names and qualities of the others. The inner ring is the first observed; but, after Aquinas has finished his address, it begins to wheel round, and has hardly once revolved ere another garland encompasses it—

*“Motion to motion, sang to song, conjoining;
Song that as much our muscs doth excel,
Our syrcns with their tuneful pipes, as ray
Of primal splendour doth its faint reflex.
As when, if Juna bid her handmaid forth
Twa arches parallel, and trick'd alike,
Span the thin cloud, the outer taking birth
Fram that within (in manner of that voice
Whom love did melt away, as sun the mist),
And they who gaze, presageful, call to mind
The compact, made with Noah, of the world
No mare to be a'erflowed; about us thus,
Of sempiternal roses, bending, wrcath'd
Those garlands twain; and to the innermost
E'en thus the external answer'd’.*

Paradiso, Canto XII., lines 5-19

Saint Bonaventura, of the Franciscan order, speaks out of the external wreath, and informs Dante who are the eleven others composing the garland of which he is himself one of the living flowers. The “voice whom love did melt away” is that of Echo, who, for the love of Narcissus, faded into a sound.



EN ROUTE FROM THE SUN TO MARS

After staying a long while in the fourth heaven (the Sun), Dante rises with Beatrice to the planet Mars, which forms the fifth heaven.

*"O genuine glitter of eternal Beam!
With what sudden whiteness did it flow,
O'erpowering vision in me! But so fair,
So passing lovely, Beatrice show'd,
Mind cannot follow it, nor words express
Her infinite sweetness. Thence mine eyes regain'd
Power to look up; and I beheld myself,
Sole with my lady, to more lofty bliss
Translated: for the star, with warmer smile
Impurpled, well denoted our ascent.*

* * *

*With such mighty sheen
And mantling crimson, in two listed rays
The splendours shot before me, that I cried
'God of Sabaoth! that dost prank them thus!'"*
Paradiso, Canto XIV., lines 71-85

The plate shows us the two figures of Beatrice and Dante floating upwards on soft cloud-wreaths towards the rosy-tinted planet, thronging with beatified spirits.



DANTE VISITS MARS

Beatrice having carried Dante into the fifth heaven, which is situated in the planet Mars, they behold the souls of those who had died in the Crusades, on behalf of the Christian religion, ranged in the sign of a cross.

*“Christ
Beam’d on that cross; and pattern fails me now.*

.
From horn to horn,
And ’tween the summit and the base, did move
Lights, scintillating as they met and pass’d.”

Paradiso, Canto XIV., lines 96-103

Angels move athwart this cross, to the sound of a hymn which holds Dante in a state of rapture for some time.



DANTE ASCENDS FROM MARS TO JUPITER

Quitting the planet Mars, Beatrice and Dante ascend to Jupiter, the sixth heaven, in which they see the souls of those who have ruled justly on earth disposed in the air after such a fashion as to form the figure of an eagle.

*"And that which next
 Befals me to portray, voice hath not utter'd,
 Nor hath ink written, nor in fantasy
 Was e'er conceiv'd. For I beheld and heard
 The beak discourse; and, what intention form'd
 Of many, singly as of one express,
 Beginning: 'For that I was just and pitous,
 I am exalted to this height of glory,
 The which no wish exceeds; and there on earth
 Have I my memory left, e'en by the bad
 Commended, while they leave its course untrod.'
 "Thus is one heat from many embers felt,
 As in that image many were the loves,
 And one the voice that issued from them all."*

Paradiso, Canto XIX, lines 1-19.



THE SPIRITS IN JUPITER

In the orb of Jupiter — the sixth heaven — Dante sees a number of spirits moving about through the air with glittering brightness.

*“And as birds, from river banks
 Arisen, now in round, now lengthen'd troop,
 Array them in their flight, greeting, as seems,
 Their new-found pastures; so, within the lights,
 The saintly creatures, flying, sang, and made
 Now D, now I, now L, figured v' the air.
 First singing, to their notes they moved; then, one
 Becoming of these signs, a little while
 Did rest them, and were mute.”*

Paradiso, Canto XVIII., lines 67-75.



DANTE AND BEATRICE IN SEVENTH HEAVEN

Here Dante sees reared up high into space a ladder in color like sun-illuminated gold. He could not see its top but down whose steps he

“saw the splendours in such multitude
Descending, every light in heaven methought,
Was shed thence.”

The spirits thus beheld by the poet are the souls of those who had passed their lives in retirement, austerity, and sacred contemplation. One of these, who on earth had been Pietro Damiano, a hermit of the eleventh century, speaks with Dante, and laments, as he had lamented in life, the luxury of the clergy. Upon which, says the poet —

“I at those accents saw the splendours down
From step to step alight, and wheel, and wax,
Each encircling, more beautiful.”

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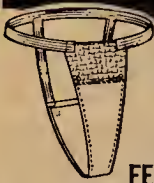
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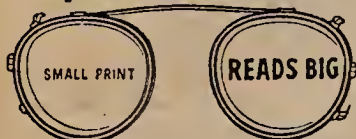


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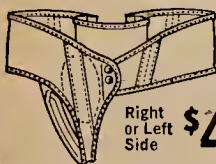
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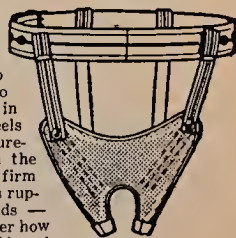
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ONE MORE MYTH?

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However, like Washington's Cherry tree hatchet and William Tell's arrow, Alexander McAdie, Harvard meteorologist, felt (1926) that this kite story was pure myth. It was said to originate with one Stuber who stated Franklin "observed the loose fibres of his string move toward an erect position. He now presented his knuckle to the sky and received a strong spark." In brief, wrote McAdie, had Franklin really done that he would have been killed — his son, too. McAdie also wrote the myth would live on — as of course it has.

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