

CHRONOLOGY

Two Dates for Easter

Roman Catholics and Protestants celebrate the Resurrection of Our Lord on Sunday, March 25. Millions attending the Eastern Orthodox Churches will wait until April 29.

By MARTHA G. MORROW

➤ EASTER this year will fall on two different dates more than a month apart.

Roman Catholics and Protestants will celebrate the Resurrection of our Lord on Sunday, March 25. But for millions attending the Eastern Orthodox Churches, Easter will not come until Sunday, April 29, fully five weeks later.

The reason for this difference in date goes back many centuries to the time our calendar was reformed. The Eastern Orthodox Churches, unwilling to accept orders from Rome, still cling to the old Julian calendar in calculating the date of Easter. Other Christian denominations in computing the Easter date use the calendar as revised in the sixteenth century by Pope Gregory XIII.

At the present there is a difference of 13 days between the two calendars. Those using the Julian calendar find that their March 21, traditionally the first day of spring, comes almost two weeks after the vernal equinox. But Sundays and other days of the week coincide in the two calendars.

"The first Sunday after the first full moon on or after the twenty-first of March," is the general rule for fixing the date of Easter. If this, the Paschal full moon, should fall on a Sunday, then Easter falls on the next Sunday. The Paschal full moon is determined by rules for ecclesiastical computations and should not be confused with the real full moon.

Calendar reformers who object, for commercial reasons, to an Easter late in April should remember that the Gregorian calendar brings Easter much earlier than it would be if we still used the old Julian reckoning. Gregorian Easter Sundays precede the corresponding Julian Easter Sundays by at least a week 74 times during the present century, and precede it by as much as five weeks on 21 occasions, points out Dr. Alexander Pogo of the Carnegie Institution of Washington.

No Fixed Date

Unlike Christmas, the Fourth of July and many other holidays that occupy fixed places on the calendar, the date of Easter changes from year to year according to certain involved calculations. A fixed date for the observance of Easter, the first religious holiday ever celebrated by Christian people, has never been universally accepted because of its historical relationship to the Jewish Feast of the Passover.

The Feast of the Passover celebrates the liberation of the Hebrews from Egyptian bondage. The memorial feast was celebrated on the fourteenth of the month of Nisan, that is, on the first full moon of spring. It was on the day of preparation or the first day of this festival, on a Thursday that Jesus and his disciples ate the Last Supper. The next day, Friday, was the day of the Crucifixion and the following Sunday the day on which Our Lord arose from the dead—the first Easter.

In time a serious controversy arose between the Jewish Christians and those of Gentile descent as to the correct day on which Easter should be observed. To the former, the relationship of Easter to the Feast of the Passover was all-important, and the day of the week immaterial. The Gentile Christians, unfettered by Jewish traditions, insisted that the Resurrection should always be celebrated on Sunday, and placed Good Friday, which commemorates the Crucifixion, on the preceding Friday.

Always on Sunday

The Council of Nicaea in 325 put an end to this controversy by deciding that Easter should always fall on Sunday. The vernal equinox or first day of spring was fixed for March 21. This Council also ruled that if the Paschal or Passover full moon occurred on a Sunday, Easter would be celebrated on the following Sunday so that Easter would always follow the Feast of the Passover and never coincide with it.

So that the same Sunday should be observed throughout the world, the Council ruled that the correct date for the Easter festival should be calculated at Alexandria, then the center of astronomical study. This ruling, however, was not long followed, for St. Augustine writes that in 387 Easter was celebrated on three different Sundays. The Churches of Gaul kept Easter on March 21, those of Italy on April 18, and those of Egypt on April 25.

In practice we do not depend on observation to determine the arrival of spring, or the phase of the moon, but on certain arbitrary, but fairly exact, mathematical rules which make it possible to calculate the date for many centuries in advance or for years long past.

Our present Easter rule, officially adopted late in the sixteenth century, misses the exact date only occasionally for many centuries to come.

This year the first full moon after the beginning of spring comes on March 23. The arbitrary calendar rule puts this full moon on March 22. In either case the following Sunday is March 25, the date we call Easter Sunday.

Easter last fell in March in 1948, there being only two April Easters between, which is almost as low a number as can occur. There are never two March Easters in succession, states the Rev. George W. Walker of Buffalo, N. Y. The shortest possible interval includes a single April Easter in between. This happened last between 1837 and 1839, and will again occur between 1989 and 1991.

After this year there will not be another Easter in March until 1959, which is almost as long an interval as can occur between March Easters. The present century offers four runs of seven April Easters. This record of seven Easters falling in April one right after the other will hold for many centuries, but it will be broken by a run of ten April Easters in a row beginning 2855.

Easter can come anytime from March 22, as it did last in 1818, to April 25, which was the case in 1943. This year for the first and only time this century Easter comes on March 25. The most frequent date for Easter is April 19, the celebration falling on that date, on the average, once in 26 years.

Currently March 24 is the most unusual Gregorian Easter date. Easter fell on that date in 1940, the second time since the Gregorian calendar reform. March 22 holds the record for "absenteeism" in the first thousand years of the Gregorian calendar, an interval of 467 years elapsing between Easter on March 22, 1818, and Easter on that date in 2285.

Passover Month Later

Although usually Easter as calculated by the Roman Catholics and Protestants, and the Passover as reckoned by the Jews, come about the same time, this year the Feast of the Passover falls almost a month later. It begins on Saturday evening, April 21.

The Orthodox Churches insist that the sequence of events be the same as in the Biblical accounts of the Resurrection. Thus some 6,000,000 communicants of the Eastern Orthodox Churches here in the United States, and an estimated 200,000,000 throughout the world, must wait for their Easter until long after the mild days of spring have arrived.

But even the Orthodox churches do not follow the Julian calendar uniformly. The Greek, Syrian and Romanian Orthodox Churches follow a Revised Julian calendar which agrees with the Gregorian calendar in the calculation of fixed Feasts, but the



ORTHODOX—*Elaborately-decorated Easter eggs of Russian design, such as these at the Smithsonian Institution, Washington, will be in season over a month after Easter is celebrated by most people in the United States.*

calculation of Easter corresponds with the Julian calendar. The Russian, Serbian, Bulgarian, Ukrainian and other Slavic Churches still use the Julian or old calendar exclusively, and thus their communicants celebrate Christmas 13 days after those of the other Orthodox Churches.

The difficulty of frequently having two dates for Easter and even Christmas can be blamed on the fact that the earth takes an uneven time to circle around the sun. The solar year consists of 365 days, five hours, 48 minutes and 46 seconds. In addition, the moon takes 29.531 days—another odd interval—to finish its trip around the earth.

The Egyptians, who calculated the solar year as 365 days, divided the year into 12 equal months each of 30 days, the remaining five days being devoted to festival holi-

days. Their weeks, however, were ten days long.

Nor did the Julian calendar as instituted by Julius Caesar include any seven-day week. This was an eastern invention, used both by the Babylonians and by the Jews. Not until the fourth century was the week definitely established in Christendom and Sunday proclaimed as the day of worship.

Upon the advice of the Alexandrian astronomer Sosigenes, Julius Caesar adopted 365¼ days as the true length of the year and ordained that every fourth year should contain 366 days. The solar year, however, is 11 minutes, 14 seconds shorter than this, so in the course of 1,000 years the Julian calendar developed a lag of nearly eight days.

In time March 21, marking the first day of spring, came many days after the actual vernal equinox as calculated by the sun. By 1582 it fell on March 11, instead of occurring on March 21, as it did at the time of the Council of Nicaea. Pope Gregory XIII therefore, upon the advice of the astronomer Clavius, ordered the calendar corrected by dropping ten days.

In Roman Catholic countries, where the Gregorian calendar was adopted earlier than in the other Christian countries, the day following Oct. 4, 1582, was called the fifteenth instead of the fifth.

To avoid further displacement of the beginning of spring, Gregory decreed that the rule of adding an extra day every fourth year should be followed except in the case

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of those century years whose number is not divisible by 400. Thus 2000 A.D. will be a leap year, but 1900 was not.

Eleven days had to be dropped by England and the colonies—including America—to bring the calendar in line when the new type calendar was adopted in 1752, almost

200 years after it came into use in some European countries.

But the Gregorian calendar has never been accepted by all Christian Churches, for calculating Easter or even for calculating other Holy days.

Science News Letter, March 17, 1951

MEDICINE

Khellin Aids Angina

More than three-fourths of a group of heart disease patients are helped by drug extracted from a Middle Eastern plant relative of hemlock.

➤ MORE than three-fourths of a group of heart disease patients have been helped by khellin, drug extracted from a plant that grows wild in eastern Mediterranean countries and which is a botanical relative of the hemlock that killed Socrates.

The good results with the drug in trials at Boston City Hospital, Boston, Mass., are reported by Drs. Harold L. Osher, Kermit H. Katz and Donald J. Wagner.

The patients, 32 in all, were victims of angina pectoris. The angina pains became less frequent and less severe in 26 of them, and these 26 were also able to perform more exercise before the angina pain stopped them.

Fourteen of the group had been incapacitated before khellin treatment was started. Of these, nine were rehabilitated to the extent that they could go back to work.

One of these is a 57-year-old man with arteriosclerotic heart disease who has had angina pectoris for 18 months. Progressively lessening ability to exercise forced him to give up his work as a laborer. For several months he averaged two or three attacks of angina heart pain every day in spite of

marked restriction of activity. After khellin treatment was started, he had only three attacks in two weeks, and his exercise tolerance increased from 20 to 34 trips on a standard exercise step test.

Continued treatment reduced attacks to one in 43 days and enabled him to perform 54 trips on the two-step exercise apparatus before pain stopped him. He returned to work as a laborer and for three months has been "carrying on a moderately strenuous occupation without difficulty."

Another patient who got similar benefit from khellin treatment for three and a half months has been back on his job and remained in good shape for two months without taking the drug.

Two other patients have also been able to get along for two months without taking the medicine. Such let-ups in the disease sometimes come spontaneously, but in these four patients there had not previously been such improvement.

The khellin was given in the form of sugar-coated pills taken four times a day, after meals and before retiring. Sugar pills identical in appearance were given either before the khellin treatment was started or after a period of khellin treatment, to check on any possible psychologic effect of taking a new medicine.

Details of this trial of the drug are reported in the NEW ENGLAND JOURNAL OF MEDICINE (March 1).

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PHARMACY

Pharmacists Urged To Stock "Bal"

➤ STOCK BAL as part of your public emergency service, the nation's pharmacists are urged in a report from their national organization, the American Pharmaceutical Association (JOURNAL, Feb.).

BAL, short name for British Anti-Lewisite, is at present the only known specific antidote for poisoning by heavy metals such as arsenic, mercury and gold. It was developed in England during the early days of World War II to counteract the

effect of Lewisite, poison gas containing arsenic. Kept hush-hush during the war, it was released for civilian use at the end of the war.

The manufacturers of BAL at times have received frantic telephone calls from all over the country asking that a supply of the chemical be flown immediately to the bedside of a patient who has swallowed bichloride of mercury or a child who has eaten rat poison containing arsenic. It has not always arrived in time, the pharmaceutical association reports.

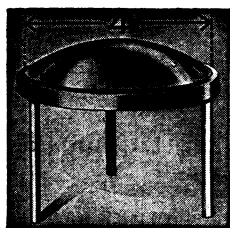
Every hospital and retail pharmacy should have at least a 10-vial package on hand at all times with complete directions for use, Dr. James H. Lade of the New York State Health Department urges. He has recently had a supply of BAL stocked in 128 laboratory supply stations throughout the state for free distribution to all physicians in case of arsenic and mercury poisoning. But, he points out, physicians would not normally turn to a health department laboratory for such a drug.

Many lives would be saved each year, he believes, if the physician could get the drug at pharmacies where he normally would go for a poison antidote.

Science News Letter, March 17, 1951

PROJECT SHOW—Left to right, beginning at top: Robert J. Kolenkow shows his apparatus for measuring the speed of sound; R. E. Simpson, parts of cyclotron; F. J. Ernst, Jr., hand-made telescope with camera; Mary H. Martin, study of chromosomes; N. A. Wheeler with his home-made cloud chamber; Rhea Mendoza showing her study of the Confused Beetle; D. W. McColm, rubber chemistry; Lenard Wharton, new set of organic chemical compounds; John T. Sibilis, instrument for measuring wave intensity; John J. Demkovich, Jr., with his optical instruments; Katherine M. Lyser with turtle she studied; and John M. Dennison with his geological column of Mineral County, W. Va.

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