



string. So if you get acquainted with those now visible, you will be better able to enjoy their brothers and sisters as they come into view.

#### Celestial Time Table for August

**Tuesday, August 1,** 7:00 p. m., Moon farthest away, distance 252,400 miles. **Saturday, August 5,** 8:46 a. m., Moon passes Jupiter. **Monday, August 7,** 4:01 a. m., Moon passes Saturn. **Tuesday, August 8,** 4:18 a.

m., Moon at last quarter. **Friday, August 11,** early a. m., Perseid meteor shower seen at best. **Monday, August 14,** 10:53 p. m., New moon. **Tuesday, August 15,** 3:00 a. m., Moon nearest, distance 222,000 miles. **Monday, August 21,** 4:21 p. m., Moon at first quarter. **Saturday, August 26,** 9:02 a. m., Moon passes Mars. **Monday, August 28,** 2:00 a. m., Mercury farthest west of sun, visible as morning star; 10:00 p. m., Moon farthest, distance 252,500 miles. **Tuesday, August 29,** 5:09 p. m., Full moon.

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#### PHYSIOLOGY

## Ten B Vitamins Now Reported And More May Be Discovered

### How Many and Which Are Essential in the Human Diet Has Not Been Settled, But Ordinary Diet Supplies All

**V**ITAMIN B has now been chemically sliced into 10 different vitamins or factors and the end is not yet in sight, Prof. C. A. Elvehjem, of the University of Wisconsin, discoverer of pellagra-curing nicotinic acid, the third B vitamin, told a chemical research conference at Gibson Island, Md.

"The boundaries of the B complex are still unknown," Prof. Elvehjem declared. The B complex is "the group of water-soluble vitamins found in yeast." Liver and whole grains are also richly supplied with this vitamin.

Oldest of the B vitamins is the chemical now known as thiamin, which prevents and cures the nerve disorder, beriberi. Next in line is riboflavin, recently discovered to be essential for human health but known much longer as one of the B vitamins through discoveries of the dire effects on laboratory animals of a lack of this substance.

Nicotinic acid, preventive and cure for pellagra, was the third B vitamin

to be cut out of the group by chemical dissection.

The spectacled eye factor is the picturesque way Prof. Elvehjem described one of the newest members of the B group. Rats lacking this vitamin develop the condition described as spectacled eyes.

Pantothenic acid, acclaimed recently as a vitamin essential for all living forms, is the same vitamin that prevents a skin disorder in chicks, Prof. Elvehjem said.

The anti-gray hair member of the B group is apparently a rat vitamin only. Another rat vitamin is B<sub>6</sub>, also called Factor 1, and fortunately is now identified chemically and available in synthetic form. The chemical identification is fortunate because it helps to clear up some of the confusion about these vitamins.

Factor W, for rats, and Factor U, for chicks, and another substance known at present as vitamin M, apparently complete the list of the 10 B vitamins so far known.

How many and which of them, outside of thiamin, riboflavin and nicotinic acid, are essential in the diet of humans has not been entirely settled. The difficulties of chemical separation of the B vitamins from each other suggests that people eating plenty of food sources such as whole grains, liver and other fresh meat, and yeast, cannot fail to get all of the B vitamins.

The members of the group already available as chemical substances, thiamin and nicotinic acid, for example, are valuable for patients too sick to eat and assimilate the vitamin-containing foods.

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#### BIOLOGY

## Sex Hormones from Bees May Affect Vertebrates

**N**EW evidence that biologically "we are all members one of another" comes out of the beehive. What seems to be a female sex hormone, or gland secretion that powerfully influences the development of the reproductive capacity, produced by worker bees, has been shown capable of effects in animals so remote from the bee world as rats, and therefore presumably on other mammals as well.

The evidence is reported by Dr. Henry L. Heyl of The Children's Hospital, Boston. He found that a chemically prepared extract of royal jelly, the special food given only to bee larvae destined to become queens, when injected into the bodies of immature female rats caused a precocious development of the tissues of their ovaries directly surrounding the egg cells.

Royal jelly is a most peculiar stuff. It is secreted in glands in the mouth of the worker bee. Fed to female bee larvae in a still-undifferentiated state, it causes them to mature rapidly and become full-fledged females or queens, with functional reproductive glands. The other female larvae, comprising the vast majority of the brood, receive royal jelly for only the first three days and develop into workers, which are female insects with undeveloped ovaries and under ordinary circumstances incapable of producing eggs.

Although the royal jelly confers upon the queen bee the power to become the mother of the hive, it does not seem to carry with it the gift of the so-called maternal instinct. Says Dr. Heyl, "The worker exhibits many maternal instincts, the queen none." These insect spinsters not only serve as nurses for the offspring of their larger, fruitful sister; they even produce the wonder-food

that makes queens of some of her daughters, though they receive no benefit of it themselves.

This apparent production by bees of a hormone that can influence the development of mammals and other vertebrates is a new piece in a modern biological puzzle that becomes increasingly com-

plex. Female animals produce male hormones, male animals produce female hormones, and animal hormones characteristic of both sexes have been found in plants, even in some of the lowest forms. Physiologists still have a lot of explaining to do.

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#### ARCHAEOLOGY

# More Than 50 Expeditions Will Uncover American Past

## Archaeologists Plan Busy Summer With Pick and Shovel; Nearly Another 50 Parties Will Explore Foreign Sites

By EMILY C. DAVIS

**S**EE ancient America first! This is the present American trend in the big scientific adventure of digging up prehistory. Out of nearly 100 American archaeology expeditions taking the field this summer, more than 50 will make the dirt fly within the states.

A current slump in American eagerness to explore foreign lost kingdoms and buried civilizations is partly due to economic considerations. Long-distance expeditions are costly. Partly, too, there is a canny desire to skirt around international danger zones.

But there is no slump in digging up ancient America. The Indian panorama, which left its mark on our roads, agriculture and other highly important developments, is being unearthed at unprecedented speed.

Partly responsible for the attack on American prehistory on so many fronts—that is to say, in so many of the states—is the WPA program, financing 32 of the archaeological expeditions, in 22 states. In each project the government provides the labor, giving 2,500 men and women work. A museum, university, or scientific institution sponsors each expedition, and supplies archaeologists to direct it.

### May Find Men

This summer of 1939 may prove the big year revealing the long-sought men who first took America. The trail of their weapons and bones of great beasts they slew have tantalized archaeologists long enough. They are increasingly eager to find bony remnants of the hunters themselves. Modern America would like to meet personally the first inhabitants,

who apparently came before the last Ice Age ended, a good many thousand years ago.

The only archaeologist that the Smithsonian Institution in Washington is sending out to dig, this summer, will pursue the manhunt for the missing Folsom hunters. Digging in Colorado, at the one known campsite of Folsom Man thus far discovered, Dr. Frank H. H. Roberts, Jr., of the Smithsonian, has in previous seasons found a variety of their stone tools and the red paint they used for art, as well as dinner remains and the debris of their tool-making. All this provides the most varied picture of the mystery man yet unearthed, and Dr. Roberts still hopes that, if any of the hunters were unlucky enough to die while camping at this place, he may have the luck to find the bones.

### Cooperative Venture

Meanwhile, a hunt for Folsom Man's remains and relics is being organized into a cooperative venture under WPA auspices in universities in Montana, Wyoming, and neighboring states. By pooling resources and knowledge, these searchers expect to make greater progress than would be possible alone, in tracing routes and experiences of the earliest immigrants who came via the Siberian-Alaskan route to live in the New World. There is even the possibility of detecting earlier and still more shadowy arrivals than the Folsom hunters, judging by recent findings in California of more primitive and apparently more ancient tools than Folsom Man's own.

Bestirred by the building of the dams in the Tennessee Valley and other regions, archaeologists are now working against time to rescue relics of the past buried

in each new era marked for inundation. Indian mounds and settlements are now being explored in Texas and the TVA area where landscape will soon become a lake bottom, lost forever for further investigation.

Many of the shell ornaments and Indian belongings coming to light in Alabama mounds, in this race to rescue prehistory, are providing valuable missing links in the story of the Southeast. They may eventually show what was the connection, centuries ago, between centers of high Indian culture in the Mississippi Valley and those in the deep south.

To study a little-known type of Indian life that thrived in the Southwest over a thousand years ago, three different museums are sending out expeditions. The Mogollon culture is the name archaeologists have bestowed on this distinctive pattern of Indian life, detected by some of its relics.

### Study Mogollon Culture

The only archaeological expedition sent out by the Field Museum of Natural History this summer will investigate this Mogollon culture in New Mexico. Digging in early ruins near Glenwood, the explorers hope to find out whether the little-known Mogollons had anything to do with the well-known Basket Maker Indians who made homes in the Southwest in centuries around the turn of the Christian era.

At another ruin not far away the same Mogollon Indians will be investigated by scientists of the Logan Museum of Beloit College, with the idea that these elusive ancients might have some connection with Pueblo Indians, who succeeded the Basket Makers.

In Arizona, south of Showlow, a Mogollon village occupied apparently about 700 or 800 A. D. will be explored by the Arizona State Museum, for any light on these Indians and their role in America's past.

Confident that they can actually date prehistoric events in the middle west, archaeologists of the University of Chicago are now putting final touches on two master charts of tree rings. These charts, which have been built up by matching and overlapping older and older series of annual growth rings formed in midwestern trees, can be linked with calendar dates in which distinctive series of rings formed. Like the tree-ring calendar which has restored to Southwestern pueblos and cliff-dwellings their "ages," the two new tree-ring calendars will help date events in the lives of the Mound Builders in the northern