MEDICINE

# Penicillin Saves Babies

**Syphilis, in early stages, in expectant mothers is either cured or suppressed, stillbirth and miscarriage are averted, and apparently healthy babies born.**

➤ FRESH triumphs for penicillin and one case of allergy to it are reported (*Journal, American Medical Association,* Oct. 14).

Early syphilis in expectant mothers is either cured or at least suppressed, miscarriage and stillbirth are averted and apparently healthy babies are born when the mothers are treated with penicillin, Dr. J. W. Lentz, Dr. Norman R. Ingraham, Jr., Dr. Herman Beerman and Dr. John H. Stokes, of Philadelphia, report.

Babies born with syphilis make a good response to penicillin treatment. Not enough time has elapsed to be sure whether mothers or babies are really cured of the infection and more study is needed to determine the best dosage of the mold chemical. The Philadelphia doctors, however, appear hopeful that penicillin may prove as good as or better than present treatment with arsenicals.

Penicillin combined with sulfa drugs saved 12 out of 13 patients suffering with meningitis due to pneumonia germs, a once 100% fatal disease, Dr. Antonio J. Waring, Jr., and Dr. Margaret H. D. Smith, of Baltimore, report. The penicillin-sulfa drug combination, they find, is more effective than either penicillin or sulfa drug alone or sulfa drug combined with serum.

Multiple boils following prickly heat or heat rash in babies, a common and often refractory problem in the south during warm weather, clear up more rapidly with penicillin than with any other known treatment, Dr. Rose Coleman and Dr. Wallace Sako, of New Orleans, report.

The case of acquired sensitivity to penicillin, analogous to drug or serum allergy, is reported by Dr. Leo H. Criep, of Pittsburgh.

It took the form of hives which showed as soon as a penicillin injection was given. The reaction continued until penicillin treatment was stopped.

*Science News Letter, October 21, 1944*

MEDICINE

# Sinus Notion Debunked

**The idea that once you have sinus disease, you always will have it, is called false. Sulfa drugs have been disappointing, penicillin offers more promise.**

➤ GOOD NEWS for sinus sufferers appears in a report recently issued by the Mayo Clinic.

"Once sinus disease, always sinus disease" is branded as a "false notion" which it is hoped can be overcome.

The kind of treatment to be given and the question of whether an operation is necessary depends on whether the patient has fulminating sinusitis, acute sinusitis, a subacute or recurring acute form of the disease, chronic sinusitis or a mixture of allergic and infectious sinusitis. Treatment is primarily medical for acute, subacute and recurring acute sinusitis. It is primarily surgical for chronic sinusitis.

Sulfa drugs have proved disappointing, chiefly because the true identity of the infecting germs was not suspected. Penicillin in conjunction with suitable surgical procedures offers more hope.

Five serious complications of sinusitis, almost always fatal when present all together are: spreading osteomyelitis of the cranial bone, meningitis, brain abscess, abscess in the eye socket and cavernous sinus thrombosis. The treatment for these complications is their prevention. They are not always due to staphylococcus. Another germ, against which penicillin is definitely effective, has been found as the cause in these conditions.

Several patients with spreading osteomyelitis who would ordinarily have been expected to die have been cured by penicillin.

X-ray pictures are important not only for diagnosing the trouble but for showing the anatomic arrangement of the sinuses which varies in different persons. Such knowledge is important to the surgeon planning an operation.

The idea that the early morning postnasal drip, which sends many patients to their doctors, is sinus trouble is a false conception of sinusitis held by many patients and doctors.

The terms "radical" and "conservative" in connection with operations for sinusitis "should be avoided as making no sense." Preferred terms are "adequate" and "intelligent."

*Science News Letter, October 21, 1944*

ASTRONOMY

## Amateurs May Find Comet By Searching Crater and Leo

➤ AMATEURS interested in rediscovering Comet Berry, discovered at Dunedin, New Zealand, the middle of September, should search in the constellations of Crater, the cup, Leo, the lion, and Sextans, the sextant, according to

***FOR GUIDING SURGEONS' FINGERS—This shining steel device locates bullets and other foreign matter imbedded deep in wounded fighting men. A portable field X-ray machine device, shown here being assembled at the Westinghouse X-ray Division, measures the depth and position of the bullet. It also marks the patient's skin to enable the surgeon to position him on the operating table precisely as he was on the X-ray field table close to the combat area.***

calculations made by L. E. Cunningham, Aberdeen, Md.

"The comet is likely to appear as a faint, fuzzy patch of light, and can be distinguished from the many nebulae in the region by its motion past the stars," Mr. Cunningham states. "When this motion has been definitely proven, the position should be reported to the Harvard College Observatory."

Since its discovery on Sept. 13 the comet has moved into the part of the sky near the sun and is lost in the twi light. A cablegram from the Carter Observatory, Wellington, New Zealand, sent in reply to a request from Mr. Cunningham, states that the comet was last observed on Sept. 16.

At the time of its discovery, the comet was of the fifth magnitude and so was faintly visible to the naked eye. Three days later, however, it had faded to the sixth or seventh magnitude, and required a small telescope to see it. Unless the comet is accidentally rediscovered after it emerges from the morning twilight, its orbit will remain unknown.

*Science News Letter, October 21, 1944*

PSYCHOLOGY

# Better Brain Wave Record

## Use of television techniques suggested as aid for understanding the mechanism of mental activity. Lack of suitable instruments only bar to plotting brain messages.

➤ ELECTRICAL engineers who have solved the scanning problem in television could help solve the technical problems now hampering scientists trying to understand the mechanism of mental activity through study of the electric potentials of the brain, Dr. R. W. Gerard, physiologist of the University of Chicago, declared at the National Electronics Conference in Chicago.

Only lack of suitable instruments, he said, "prevents the plotting of every single message which travels anywhere in the brain."

The philosophical arguments over whether man has a free will might some day be settled on the basis of physical measurements of electrical activity in the brain, he hinted.

Such measurements, in the form of brain wave tracings, have already told scientists some things about brain activity and make possible the detection of unsuspected epilepsy, location of brain tumors, and the like.

"By all means the most dramatic thing about the brain waves," Dr. Gerard said, "is that they exist with the subject at rest and are actually fragmented by activity. The main, or alpha, rhythm is most pronounced in a person sitting relaxed in a dark room. Mental effort, mild emotion, or sensory stimulation, especially by light, disrupts it. Experiments on other animals, notably the frog, prove what the human observations suggest; that the brain has a spontaneous electrical beat, as automatic as that of the heart, which is modified by but not dependent on outside stimulation.

"This major discovery has changed our thinking about the brain; from the picture of a passive telephone system which is inactive unless receivers are up, to one of a system in continuous activity and able to start its own messages as well as to receive others. This does not yet quite make a place for free will but it does fit far better with the facts of conscious experience."

Among problems still to be solved is how metabolic energy is transformed into rhythmic membrane potential waves. The membranes which surround all living cells, Dr. Gerard explained, are differentially permeable to ions and become polarized or charged as condensers. They are kept charged, commonly to about 50 millivolts, by energy released in the course of cell metabolism, mainly by the oxidation of sugar.

Besides the transmembrane potential, there is evidence of another maintained potential from end to end of the nerve cell but no clue as to how it is produced.

"The myriad cells, arranged in fairly regular layers in the brain cortex, beat in synchrony to a large extent—it is only then that the brain waves are ordinarily measurable—but also form spacial activity patterns and are modulated by incoming nerve signals," Dr. Gerard stated. "Part of the synchronization mechanism, at least, does not depend on nerve messages but probably on electric fields of wide extent, and these may also contribute to the spacial patterns. These problems cannot be resolved by leading from the scalp even with dozens of electrodes, the spacial variations are too great and the pick-up too wide-spread.

"One line of research, possible on man only when head operations permit work on the exposed brain, but widely applied to animals, is to insert microelectrodes into known brain regions or even, with microscopic accuracy, against or into particular nerve cells. This latter maneuver has permitted the direct measurement of membrane potential, impedence, etc., but it demands further improvement in high-resistance input voltage amplifying systems.

"Another direction of movement has

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