

GEOLOGY

Morning Glory Pool Goes on A Rampage for Two Days

►PLACID Morning Glory Pool, known to practically all visitors to Yellowstone National Park as one of the most beautiful hot springs in the entire area, went berserk the evening of June 10, pushing water toward the highway to a depth of about one foot. Superintendent Edmund B. Rogers of the park reports that four fishermen returning from the Firehold River below the pool came upon the flood and reported it to the Old Faithful Ranger Station. Investigation disclosed the overflow of the erstwhile quiet pool. The park office has no record of Morning Glory Pool previously throwing any such tantrum.

While the cause of the eruption is not known, it may have been an internal reaction to the large amount of debris that thoughtless visitors had thrown into the water from time to time; for handkerchiefs, towels, tokens, pennies, automobile hubcaps, stewpans, cans, combs, smoking pipes, pens, pencils, and other peculiar items were in the debris suddenly disgorged. Since the trees in the immediate vicinity had not been touched, the water apparently was pushed out rather than thrown to any great height.

Clearing the throat of the pool of the up-chucked matter lowered the water level some 10 to 12 feet. Within two days of the eruption, however, the pool was running over at its normal rate, the water still quite cloudy. Indications are that the water will clear itself again and the pool resume the even tenor of its way.

Science News Letter, July 8, 1944

MEDICINE

Nylon Needle May Be Used In Childbirth Anesthesia

►THE NEWEST THING in caudal analgesia, the painless childbirth method you have been reading a lot about lately, is a flexible nylon needle for injecting the pain-killing drug. The needle was shown by Dr. Robert A. Hingson, Dr. Waldo B. Edwards and Dr. James L. Southworth, of the U. S. Marine Hospital, Staten Island, N. Y., and the Philadelphia Lying-In Hospital, at the meeting of the American Medical Association. The needle has not yet been released for general use and will not be, Dr. Hingson said, until he and his associates are satisfied that it will stand

up under the autoclaving needed to sterilize it before each use.

At present, many expectant mothers who ask their doctors for this method of banishing pain in childbirth are being disappointed to find they cannot have it. The method is not safe unless used in a hospital by a physician trained in the method. Dr. Hingson and associates are giving this training to doctors as fast as they can, but it will take time before every obstetrician in the country has an opportunity to learn it. The method consists in injecting a pain-killing drug into the caudal space at the base of the spine. It takes practice to learn how to find the exact space, and if the drug is injected into the wrong place, the results may be disastrous.

About 15 out of every 100 women cannot have the method because the bony structure at the lower end of their spines has closed over the caudal space and the drug cannot be injected.

Those who can have their babies by this method have the benefit not only of a safe, comfortable time while baby is being born, but are saved much blood loss. In some cases, this saving amounts to a transfusion. Important advantage of the method, too, is the fact that the baby is saved from any danger of asphyxia and breathes the minute his nose gets into the air outside his mother's body.

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AERONAUTICS

Two Emergency Runways Perfected for Planes

►TWO QUITE different ideas for emergency runways or landing areas for planes are subjects of patents.

One, covered by patent 2,351,273, issued to G. C. Littlefield of Monterey, Calif., contemplates the use of an exceedingly tough, hardy, runner-producing grass. This is to be planted on the selected site and encouraged to form a dense sod. Then a layer of crushed rock is to be laid on top of the sod. The grass will grow up through the rock, forming a second sod or mat on top.

The second proposal, more mechanical in its nature, is put forward by Gus Burton of Wadley, Ga., for patent 2,351,002. It consists of a series of frames in which friction rollers are mounted, braced with concrete, crushed rock or other suitable anchoring means. This runway is intended primarily for disabled planes forced to make belly landings, which are ordinarily hazardous.

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IN SCIENCE

MEDICINE

Army Medical Kit Ready for Jap-Held Prisoners

►SPECIAL medical supply kits for shipment to prisoners of war and civilian internees in the hands of the Japs have been developed for distribution by the International Red Cross. The work was done by a committee of officers in the Office of the Surgeon General, U. S. Army, in collaboration with British, Canadian and American Red Cross officials.

In addition to drugs, the kits contain dressings, simple types of dental and surgical instruments, sterilizing equipment, insecticides, and water purifiers.

The units are divided into three types, a 100-man unit, containing five separate packages, a hospital unit, and a bulk supplies unit. Ten 100-man units, plus one each of the other two units, will be sufficient for the needs of 1,000 men for three months, it is expected.

Approximately 126 different drugs are provided. Each package of the 100-man unit contains a booklet with instructions, written in non-technical terms, for use of the medicines.

The 100-man unit contains those drugs which can be best used by the layman, while the hospital and bulk supplies units are intended for use where doctors may be available.

The medicines selected are those most useful in treating diseases known to be prevalent in the Far East and for ailments likely to beset persons living under prison camp conditions.

Some of the diseases for which one or more medicines are prescribed are: anemia, fevers, beriberi, blood poisoning, diarrhea, dysentery, skin infections, scurvy, pellagra, pneumonia, meningitis, ulcers and rickets.

In planning the contents, the committee of officers had the benefit of advice from Dr. Charles N. Leech of Rockefeller Institute in New York, who was interned for several months in the Philippines after their conquest by the Japanese.

The kits are packed in special waterproof plywood cases, each bearing a large Red Cross. The labels are printed in English and in Japanese.

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CE FIELDS

AERONAUTICS

High Altitude Planes Raise Electrical Problems

► AIRCRAFT designers are dreaming of the day when airplanes will be able to fly at altitudes of nine or ten miles. This means that electrical engineers will have to solve equipment problems involved in flying at these high altitudes, Lt. Col. T. B. Holliday, of the Army Air Forces, told the American Institute of Electrical Engineers meeting in St. Louis.

One major problem is the difficulty of cooling electrical apparatus at high altitudes, in spite of the fact that the atmosphere is very cold. This is due to the fact that the density of the air decreases faster than the temperature. At 18,000 feet the air is one-half sea level density, at 36,000 feet it is one-fourth. The low temperature, combined with low density, removes almost all the moisture from the atmosphere. The problem of insulating electrical circuits at these altitudes is about four times as severe as it is at sea level.

At high altitudes, electrical apparatus must be designed for excellent commutation, since arcing cannot be tolerated. Arcing which might be considered minor at sea level can become a continuous flame at high altitudes.

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AERONAUTICS

"Hot Sandwich" De-Ices Airplane Propellers

► A NEW ELECTRICAL "hot sandwich" de-icer for the propellers of airplanes that fly at stratosphere levels, where temperatures as low as 60 degrees below zero Fahrenheit are encountered, has been developed by Dr. W. H. Taylor, Dr. R. E. Workman, and Dr. F. A. Koehler, of the Goodyear Tire and Rubber Company.

It consists of a rubber boot, made up like a sandwich from three layers of specially compounded synthetic rubbers, which fits over the entire leading edge of the propeller blade. This boot is only a few thousandths of an inch thick, and weighs about one pound.

The center layer, or "meat" of the sandwich, is a special rubber that can

conduct electricity. It is made by forming continuous chains of electrical conducting carbon particles through a sheet of non-conducting rubber. When the electric current is sent through this layer of the sandwich, it grows hot, thus melting the ice that has been formed.

The upper layer of the sandwich is an abrasion-resisting synthetic rubber. It protects the boot from abrasive forces of raindrops and ice particles which tear great holes in ordinary rubber.

The bottom layer is regular insulating rubber, that prevents the heat from escaping into the propeller blade, and the electric current from being short-circuited or grounded by the metal propeller.

It can be used as a de-icer to rid the propeller of ice already formed, or as an anti-icer to prevent its formation.

The new boot may also be used to prevent ice formation on radio aerial masts, pitot tubes or air-speed indicators, wing tips not accessible to hot-air heating, tail surfaces, engine cowlings, and radiator closures.

The new conducting rubber may be used in postwar years for heating pads and lightweight, electrically-heated blankets.

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SEISMOLOGY

Earthquake Centered Near Mexico-Guatemala Border

► A VIOLENT earthquake that recorded itself on American and Canadian seismographs early on Wednesday morning, June 28, was traced to an epicenter under the Pacific ocean, near the boundary between Mexico and Guatemala, by scientists of the U. S. Coast and Geodetic Survey, on the basis of data transmitted through Science Service.

Some of the instruments oscillated so strongly that the trace went clear off the recording paper, indicating a disturbance of really major proportions.

The first shock occurred at exactly one minute before four o'clock in the morning, Eastern War Time. The epicenter was near latitude 15 degrees north, longitude 93 degrees west.

Stations reporting were: Dominion Meteorological Observatory at Ottawa, Seismological Observatory at Pasadena, the observatories of the Jesuit Seismological Association at Georgetown University, St. Louis University, Fordham University and Spring Hill College near Mobile, Ala., and the observatory of the U. S. Coast and Geodetic Survey at Tucson, Ariz.

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DENTISTRY

Dying Teeth Saved by Sulfa Drug Treatment

► TEETH in their "dying throes" which ordinarily would have to be pulled are now being saved by use of a sulfa drug plus a relatively new antiseptic, zephiran, Dr. M. Eigen, dentist of Arlington, Va., reports (*Journal, American Dental Association*, July 1).

Dr. Eigen has tried this treatment in more than 100 cases of pulpitis. This condition is an inflammation of the tooth pulp which contains nerves and blood vessels. In some cases of pulpitis treated successfully, there had also been infection at the tip of the tooth root and pain which extended into the ear.

About 10% of pulp deaths occurred in Dr. Eigen's series of 100 cases.

The method of treatment consists, essentially, in cleaning out the cavity with zephiran, which is a wetting agent with antiseptic properties, and applying a sulfa drug. In some cases, zephiran alone succeeds in clearing up the trouble but the addition of the sulfa drug seems to give better results. Dr. Eigen believes, although he says more study will be needed to clear this point, that the action of the two drugs is more than additive. He thinks that one actually potentiates the other, almost algebraically, to greater action than either would have alone.

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INVENTION

Fused Quartz Bearings For Fine Instruments

► JEWEL bearings for scientific instruments and fine machinery can be made quickly and economically out of fused quartz, by a method on which George Keinath of Larchmont, N. Y., obtained patent 2,352,266. He makes one bearing after another from a rod of the fused quartz, by grinding a notch in the end, then polishing it to the necessary smooth finish, then cutting it off—and starting the process over again.

In addition to having the necessary degree of hardness, Mr. Keinath points out, fused quartz has a considerable advantage over natural jewels and synthetic jewel-bearing materials such as synthetic sapphire and glass, in its extremely low rate of expansion when heated. Instruments with fused-quartz bearings can be used at temperatures which would render bearings of other materials quite unreliable.

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