

which has remained the same in amount all through these changes. By the process of expansion the mountains have been forced up, and the mass thus raised above the level has produced a corresponding *attenuation* of matter below. This attenuation is most likely very trifling, as it probably exists through a great depth. Whether this cause will produce a sufficient amount of compensation can be determined only by submitting it to calculation, which I proceed to do. . . .

ON THE CONSTITUTION OF THE SOLID CRUST OF THE EARTH. By Archdeacon Pratt. In *Philosophical Transactions of the Royal Society of London*. Vol. 161. London: MDCCCLXXI (1871).

A FEW years ago I proposed the following hypothesis regarding the Constitution of the Earth's Solid Crust, viz.:—that the variety we see in the elevation and depression of the earth's surface, in mountains and plains and ocean-beds, has arisen from the mass having contracted unequally in becoming solid from a fluid or semifluid condition: and that below the sea-level under mountains and plains there is a deficiency of matter, approximately equal in amount to the mass above the sea-level; and that below ocean-beds there is an excess of matter, approxi-

mately equal to the deficiency in the ocean when compared with rock; so that the amount of matter in any vertical column drawn from the surface to a level surface below the crust is now, and ever has been, approximately the same in every part of the earth.

The process by which I arrived at this hypothesis I will explain. In the *Philosophical Transactions* for 1855 and 1858 I showed that the Himalayas and the Ocean must have a considerable influence in producing deflection of the plumb-line in India. But by a calculation of the mean figure of the earth, taking into account the effect of local attraction, it appeared that nowhere on the Indian Arc of meridian through Cape Comorin is the resultant local attraction, arising from all causes, of great importance. This result at once indicated that in the crust below there must be such variations of density as nearly to compensate for the large effects which would have resulted from the attraction of the mountains on the north of India and the vast ocean on the south, if they were the sole causes of disturbance,—and that, as this near compensation takes place all down the arc, nearly 1500 miles in length, the simplest hypothesis is, that beneath the mountains and plains there is a deficiency of matter nearly equal to the deficiency in the ocean itself. . . .

*Science News Letter, May 21, 1932*

#### MEDICINE

## Yellow Fever Susceptibility Determined by New Test

A TEST for determining the success of the new vaccine against yellow fever, dread plague which claimed five victims out of every hundred persons in New Orleans fifty-eight years ago, was discussed at the meeting of the American Medical Association there.

Drs. T. P. Hughes and W. A. Sawyer of the Rockefeller Foundation, New York City, who just announced that they were able to give lasting protection against yellow fever by a newly-developed method that makes use of mouse serum, described the test.

In this test the germ or virus of yellow fever is mixed with the blood serum of the person being tested and injected into mice. If the person has in his blood

protective substances that guard against yellow fever, they will neutralize the yellow fever virus and the mice stay well. If the mice get the disease it proves that the person's blood lacks the protective substances and hence that he is susceptible to the disease.

The specific nature of this test was proved by trying it on Canadians, who have never been exposed to yellow fever. As was expected, it showed that they did not have the protective substances.

*Science News Letter, May 21, 1932*

Platinum melts at a temperature of 3200 degrees Fahrenheit, a heat some 500 degrees higher than is needed to melt steel.

#### PHYSIOLOGY

## Reactions of Normal Eyes Timed with Movie Camera

MEASUREMENTS with the motion picture camera of the time it takes the pupils of normal eyes to contract and to dilate were reported by Dr. Harry S. Gradle of Chicago, at the meeting of the American Medical Association. He found that when light is flashed on a normal eye accommodated for the dark, there is a latent period of about one-tenth of a second before the pupil starts to contract. Then, in a little over four-tenths of a second, the pupil jumps to its maximum contraction. When the light is removed, the pupil starts to dilate at a uniform rate. In making his studies, Dr. Gradle was obliged to use young, blue-eyed, blond persons, because the dark irises of brunets did not photograph clearly enough.

*Science News Letter, May 21, 1932*

#### ENGINEERING

## Iodine From Oil Brines Breaks Former Monopoly

LARGE scale production of iodine from salty brines in California and Louisiana has freed America from a South American monopoly of this essential chemical element.

This was revealed at a review of recent chemical progress arranged by the American Institute.

For years this comparatively rare chemical element has been controlled by interests in Chile that restricted the amount sold and charged a high toll. Several years ago Los Angeles petroleum engineers analyzing brackish waters from oil wells near Long Beach, Calif., discovered iodides in paying quantities. Difficulty was experienced in freeing the iodine from the large amount of worthless salts with which it was associated, but processes were perfected that resulted in commercial production of the element from both Californian oil well brines and a salt-water well in Louisiana. This assures the continuance of the supply of iodine necessary for drug, disinfectant, photographic and other uses even during a possible wartime blockade. It may reduce the price of iodine so materially as to allow new uses.

The successful production of milk of magnesia from sea water in California was also reported by S. D. Kirkpatrick, editor of *Chemical and Metallurgical*