

bonate, which, at ordinary temperatures, is soluble to the extent of 10 parts in 100 of absolute alcohol; and an anhydrous nitrate, which crystallizes, not rhombic, like nitre, but hexagonally, and by a hemiedral form, is isomorphous with nitrate of sodium, etc.

The spectrum of this substance, purified up to an atomic weight of 123.4, shows the blue caesium lines with great intensity, but the violet lines of the unpurified substances (atomic weight 109) so faintly, that a slight addition of chloride of potassium, which scarcely affects the lines Cs *alpha*, makes them disappear at once, on account of the brightness of the ground produced by the potassium. The few grams of material for this investigation were obtained from 44,000 kilograms of the Dürkheim mineral water. By a repetition of the process, from 150 kilograms of Saxon lepidolite, there was obtained by the first treatment with chloride of platinum, a product which exhibited the violet lines between Sr *delta* and Ka *beta* with the utmost intensity, but no traces of the lines Cs *alpha*. If this platinum salt from lepidolite had been a mixture of the caesium and potassium compounds,

the blue lines Cs *alpha* must have been visible along with the violet ones, because in the product obtained from the Dürkheim water, the violet ones disappear, first on the addition of chloride of potassium, and the caesium lines much later, and, indeed, only when the potassium salt is in very great excess. It follows that there must exist, besides, potassium, sodium, lithium, and caesium, yet a fifth alkali-metal, which occurs in Dürkheim, Kreuznach, and other mineral springs, in small, but in lepidolite in larger quantities.

#### Element 87

*Evidence of the Presence of Element 87 in Samples of Pollucite and Lepidolite Ores, by Fred Allison and Edgar J. Murphy, Alabama Polytechnic Institute, January 11, 1930, published in the Physical Review, February, 1930.<sup>2</sup>*

ELEMENT 87 is peculiarly well placed in the periodic table for detection by a new and very sensitive method recently reported by us. (Phys. Rev. 35, 124 [1930].) We

<sup>2</sup>For popular account of this discovery, see Science News-Letter, Vol. XVII, No. 462, Feb. 15, 1930.

have accordingly made a search for this element in samples of pollucite and lepidolite ores supplied by the Research Laboratory of the General Electric Company, and we have consistently found minima at points of the scale which correspond to an element of the atomic weight and the valence ascribed to eka-caesium. We have studied the substance in the chloride, sulphate, nitrate and hydroxide compounds, in each case finding the minima at points of the scale characteristic of an element of the chemical equivalent of eka-caesium. Since the same element in different compounds produces its characteristic minima of light at different points of the scale, the fact that minima are observed in each of the four compounds at the points appropriate to element 87 affords evidence of considerable weight for its presence in the sample under test. The element appears to have several isotopes, as judged by the number of its characteristic minima. The method employed is sufficiently delicate to detect less than one part of a compound in 10<sup>10</sup> parts of water. The work is still in progress.

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# Peyote Button Induces Religious Fervor

*Ethnology*

## Strange Indian Cult Studied by Scientist

WITH a tall pointing tipi for a church and the buttons of a peyote plant as a source of religious inspiration and power, Indians of Oklahoma conduct one of the old, least understood religious cults in America. The incorporated name is the Native American Church.

To straighten out the tangle of scattered facts and incomplete understanding about this church and its use of peyote, Dr. Maurice Smith of the University of Oklahoma, and his wife have just spent ten weeks among Oklahoma tribes that are the fountain source of the spreading cult. Dr. Smith attended several of the long peyote ceremonies. The Smiths interviewed the leading theologians and many dozen followers of the cult and also Indians who hold no faith in the powers of peyote.

"The peyote ceremony is an all night affair," said Dr. Smith, when in Washington to consult old, unpublished material on peyote in the possession of the Bureau of American Ethnology. "The Indian leader places a button of

the sacred peyote plant on the altar fire. Other buttons are passed around and chewed by the Indians, who then sing and pray."

The effect of the buttons has been reported by a number of white men who tried small quantities on themselves, but their reports do not altogether jibe with the reports of Indians long accustomed to taking the drug, Dr. Smith found. In general, peyote affects the senses. Space and perspective alter, colors become more brilliant, and time flows by at a leisurely pace.

Peyote has no serious after effects, according to Havelock Ellis and other investigators, except that white men unaccustomed to its use are likely to be made even sicker than a small boy with his first cigar. To the Indian, the white man's observations on how peyote alters the world about him would seem obvious and unimportant, for the Indian is concerned with peyote as a medicine and as a source of religious feeling.

"At the peyote ceremony, among

some tribes, it is customary for speakers to tell their religious experiences, if the spirit moves them." Dr. Smith said. "Through the night they sing, even as many as two hundred different songs, to the accompaniment of the kettledrum and the gourd rattle. Sometimes a healing ceremony is held for some sick person. Whether the peyote has any therapeutic value is one of the points that we know nothing about.

"We observed particularly the infusion of Christian ideas into the speeches and prayers. Bible ideas blend simply and naturally in the Indian mind with the old native theology."

Dr. Smith and his wife have been delving into the great collection of unpublished notes on peyote assembled by the late James Mooney for the Bureau of American Ethnology during a period of thirty years. Mr. Mooney was the first to try to understand the Indian's use of peyote and to explain it to science.

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