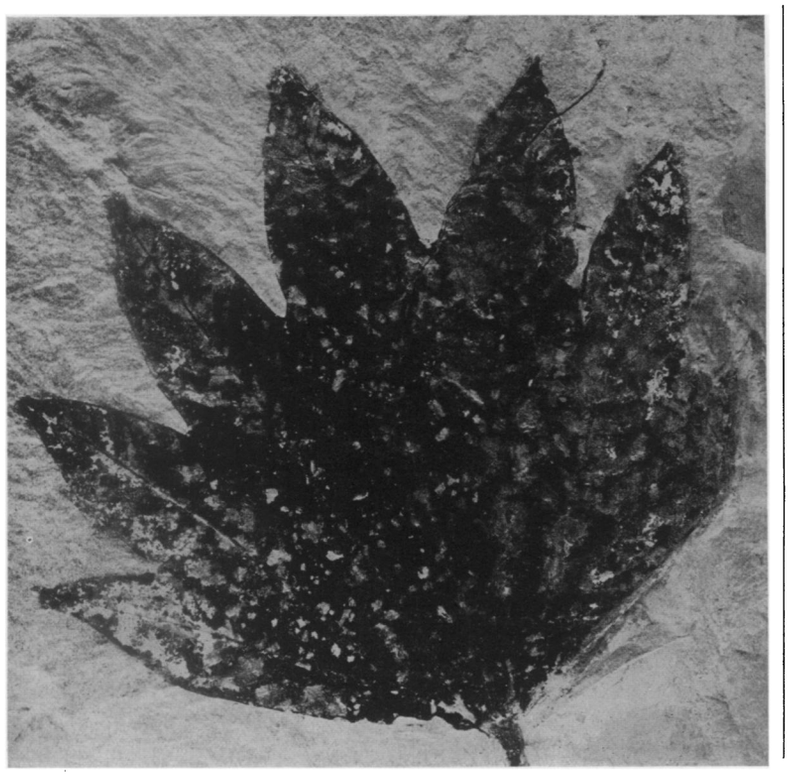

DEVIL'S CLUB

That is the awesome name of the tree from which this fossil leaf came. The tree, whose scientific name is Aralia, is one of the most common of California's fossil forests. The leaf is one of more than forty kinds found at You Bet.

University of California, is picking over the placer washings for nuggets of knowledge. Thus far he has found more than forty kinds of fossil leaves, including figs, magnolias, palms, sycamores and avocados. This makes up a complex of plant growth quite alien to the You Bet region of the present day, and indicates that California of the far past had an even warmer climate than the California of today enjoys.

Science News Letter, October 6, 1934

CHEMISTRY

Electrochemical Method Used To Concentrate Rare Earths

A NEW method for concentrating many of the so-called rare earth elements, whose purification has baffled chemistry for years, was presented to the meeting of the Electrochemical Society.

Prof. B. S. Hopkins of the University of Illinois' chemistry department told of his new experiments with salts of the rare earths in collaboration with Dr. L. F. Audrieth. Prof. Hopkins is famous for his discovery, in 1926, of the element illinium, a metal with valuable properties.

The rare earths have atomic numbers from 57 to 71 in the periodic table of the chemical elements. They are seldom shown on the familiar classroom charts because they unduly complicate the classification of the elements in a systematic arrangement.

Minerals containing the rare earths occur chiefly in Scandinavia, the Urals, America, Brazil, India and Australia. Owing to the extraordinary chemical similarity of the members of the rare earths and to the further fact that they are associated in nature, it is very difficult to separate them and to prepare them in the pure state. Prof. Hopkins' report to the society describes a new method for solving this problem, at least in part.

The first stage in the concentration of rare earths, reports Prof. Hopkins, is to mix them with mercury, for which they have a great affinity. Mercury amalgams of the rare elements are thus obtained.

The preparation of mercury amalgams is not the easy process used by dentists in making silver amalgams for dental fillings. It is necessary to use electrochemical processes where the conducting solution is mercury chloride.

Rare earth amalgams prepared electrochemically, Prof. Hopkins indicates, are liquid or pasty masses containing from one-half to three per cent. of the rare earth metal by weight. The amalgams are easily decomposed by exposure to air and moisture. They must be preserved in a vacuum or in an inert atmosphere like neon, argon or helium.

"The amalgams may serve as the starting point for the preparation of the corresponding rare earth metals," Prof. Hopkins cautiously concludes.

Science News Letter, October 6, 1934

PHYSICS

New Instrument Measures Heat of Various Sounds

WHILE the music of some of the popular orchestras of the radio is often referred to colloquially as "hot," scientists at the Massachusetts Institute of Technology have devised new and more accurate methods of determining the heat of sound.

Instead of measuring sound variations in terms of air pressure as does a microphone, the new sound thermometer records the alternating temperatures produced by sound waves travelling in air.

The device was developed at the Round Hill estate of Col. Edward H. R. Green, M. I. T. research station near South Dartmouth, Mass., by Ellis A. Johnson of the Institute under the direction of Prof. Richard D. Fay and Prof. Louis Harris.

The sound thermometer is essentially an exceptionally delicate thermocouple comprising thin metal strips of dissimilar metals, bismuth and antimony for example. Each strip is but .00001 centimeter in thickness and is mounted on cellulose acetate films of the same thickness. Together the film and strip are mounted on a thin mica frame.

The thinness of the metal strips may be appreciated when it is realized that a million of them together would make a pile not much more than an inch