PHYSICS

# Spectroscope Puts Rainbow to Work For Industry and Science

## Multitude of Jobs Done by Powerful Research Tool in Many Fields Discussed by Scientists and Industrialists

METHODS of putting the rainbow to work by means of the spectroscope were discussed at the Industrial Conference on Spectroscopy at Massachusetts Institute of Technology.

Over 100 scientists and industrialists by attending showed great interest in the spectroscope which is one of the most powerful tools for research. It has innumerable uses and in various applications serves as a watch, detective, balance, speedometer, microscope, camera, tape measure, transit and forgery detector.

### Spectroscopists From Abroad

In addition to spectroscopists from this country and abroad, those attending included industrialists and research scientists working in textiles, chemical engineering, explosive manufacturing, metallurgical engineering, astronomy, medicine, biology, coal mining, automotive engineering, paper manufacturing, and wire making.

Many uses of the spectroscope were reported.

One engineer had trouble with automobile radiator caps buckling. The spectroscope revealed impurities in the material undetectable by other means. Another told of a white paint which turned black on exposure to sun. Spectroscopy revealed minute impurities.

The importance of the spectroscope in metallurgical engineering was indicated by the fact that one company has made more than 33,000 spectroscopic photographs during research.

### Slight Impurities Detected

In crime detection the spectroscope has enabled investigators to identify materials on clothing.

A coal operator said that it can be told by spectroscopic examination from what seam coal comes. Mining engineers are using spectroscopes to detect minute impurities, which in some cases aid in finding larger amounts.

Because even small amounts of impurities may affect the life of rubber, manufacturers are greatly interested in spectroscopic methods of detecting them. These methods are also of great use in controlling the manufacture of optical glass.

In food industries, the spectroscope is valuable in checking ultraviolet irradiation and in analysis of materials. Dental researchers have found by spectroscope that mottled enamel is due to small impurities in certain drinking waters. In the case of an appendix operation where glass was found, the spectroscope revealed fragments did not come from a suspected catsup bottle in a restaurant.

### Cranberries to Raincoats

Other instances of the use of spectroscopy ranging from examination of cranberries to raincoats, cable sheathing, gasoline and transformer oil were cited. One company suspected second hand oil was being sold for use in transformers. The spectroscope confirmed it.

In discussion of light wave standards, it was emphasized that the iron standard is not obsolete but will be supplemented by copper which gives wavelengths of value in the region below one one-hundred-thousandth of an inch long. Here iron does not give enough lines to be satisfactory for standards.

Of special significance at the meeting, was the large attendance of industrialists who, while not trained in spectroscopy, realize its possibilities for their industries and want to learn how they can utilize it.

*Science News Letter, July 29, 1933*

MEDICINE

## New Type of Silicosis Found in Wales

A CONDITION corresponding to silicosis among metal miners has recently been found in coal miners of South Wales, Prof. S. Lyle Cummins of Cardiff, Wales, reported at the symposium on this important industrial disease held by the National Tuberculosis Association. Silicosis is a lung disease resulting from inhalation of particles of silica. These get into the air in the course of certain mining occupations and stone cutting. Persons who suffer from silicosis are very liable to develop tuberculosis. The (*Turn Page*)

METEOROLOGY

# They Are Certainly Dog Days And This Explains the Name

THE PORTION of the summer through which the year is now passing, known as "Dog Days," beginning July 3 and ending August 11, has nothing to do with the extremely hot appearance of dogs these days or the reputedly greater prevalence of "mad dogs" during the period.

It derives its name from Sirius, the Dog star, most brilliant of the fixed stars. Since the early days of antiquity this particular period of the year has been associated with the greatest heat of the year.

In Greek mythology the heliacal rising of Sirius was associated with the coming of the dry, hot and sultry season. The evil effects of this period on vegetation led to a belief in the baleful influence of Sirius on human affairs in general. There is no truth in this superstition, of course, but the belief was adopted by the Romans and by them transmitted over the greater part of Europe, whence it came to America.

A muggy atmosphere, thunderstorms and vacations are associated with the Dog Days. Sirius rises with the sun about July 23 and the Dog Days include the period from 20 days before to 20 days after this simultaneous rising.

While this rising of the Dog star with the sun has no influence upon the weather it does provide an excellent sign for the time of year when disagreeable, hot weather is apt to prevail, particularly heat accompanied by dampness.

*Science News Letter, July 29, 1933*