

X-Rays from Gases

(Continued from page 7)

where they hit atoms of mercury vapor, and from which he has drawn conclusions of importance in modern physical theories.

"Although no completely satisfactory theory has been proposed for the radiation problem in general," he said, "it may be that we are gradually approaching a solution of it. A number of interesting physical theories have been proposed in recent years. A physical theory, however, does not represent what we might call real truth.

"A physical theory is a collection of fundamental hypotheses and general laws, which may be used to deduce particular laws that can be applied to concrete facts. Physical theories are useful, if they explain a large number of facts in simple ways, and if they furnish definitions of terms and a nomenclature to be used in describing phenomena.

"Physical theories are tools and not creeds, but one is at liberty to believe they represent reality, if one wants to. The belief in a physical theory, however, is a similar process of thought to the belief in religious tenets.

"The greater the number of useful physical theories that are proposed, the greater the number of good tools we shall have at our disposal, to use in discovering the real truth about the way in which nature acts."

Science News-Letter, January 7, 1928

Coating Helps Electrons

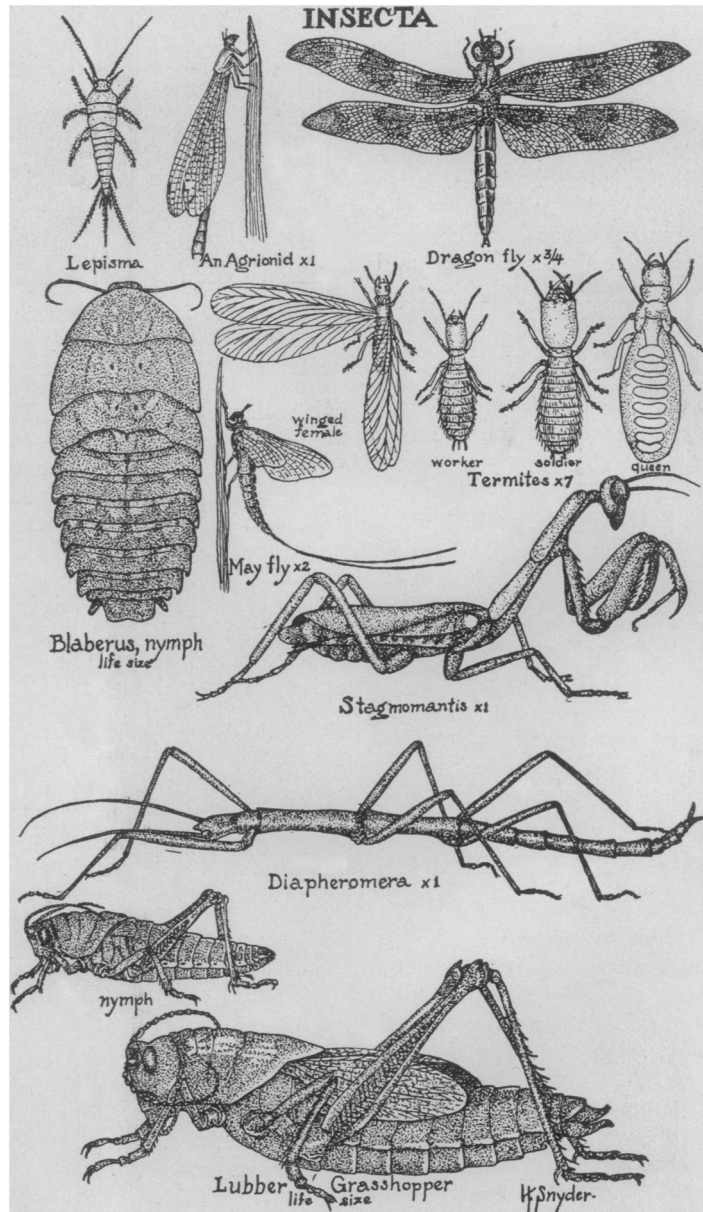
How a thin layer of atoms of caesium on the filament helps the vacuum tube of a radio set to work better was described by Dr. J. A. Becker, of the Bell Telephone Laboratories in New York. Dr. Becker told of work that he had done in collaboration with D. W. Mueller, of the same Laboratories.

The operation of a radio tube, he explained, depends on the copious emission of electrons from the hot filament. When coated with caesium, in the form of caesium oxide, the atoms of the metal arrange themselves over the filament in a single layer. But the atoms are ionized, which means that each of them has lost one of its quota of electrons, and so is positively charged. This atomic layer is then able to act in the same way as the grid of the tube, but being so close to the filament is particularly efficacious in pulling the electrons out of the tungsten of which it is made.

Science News-Letter, January 7, 1928

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