

## ASTRONOMY

**Comet Had Small Nucleus**

The Pons-Winnecke comet, which occasioned much excitement last summer when it came within 4,000,000 miles of the earth, had the distinction of possessing the smallest nucleus that has ever been observed in such a body. Probably it was not more than two or three miles in diameter. This is announced by Dr. V. M. Slipher, director of the Lowell Observatory at Flagstaff, Arizona.

Dr. Slipher took advantage of the close visit of Pons-Winnecke to watch it carefully with the observatory's big refracting telescope, which has a lens two feet in diameter. He had, he says, the best opportunity in years to make a measurement of the size of a comet's nucleus, the center which is supposed to supply the rest of its material. On most occasions, he says, "the nucleus of the comet was found to be perfectly stellar, i. e., very small and sharp." At such times "it was possible to distinguish the nucleus from stars only by its motion."

Even through the highest power telescope a star appears as a point of light. First Dr. Slipher compared the cometary nucleus with nearby stars. Then he took stars of similar brightness in another part of the heavens, near the planet Jupiter, and compared them with the large moons of that planet. As the size, and distance, of the Jovian moons are known, it was thus possible to estimate the size of the nucleus. Its distance from the earth was also known, and thus it was possible to get a rough approximation of its diameter.

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## SOCIOLOGY

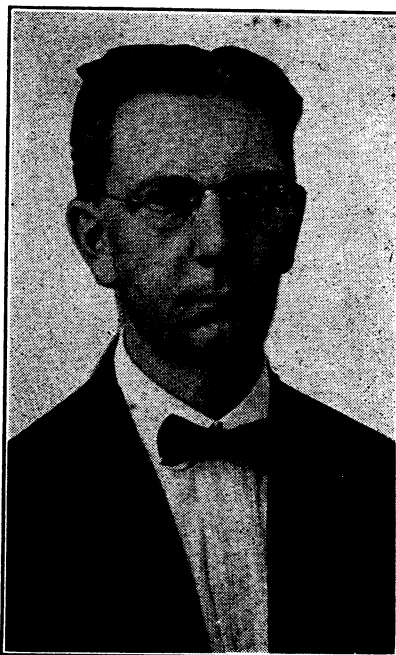
**Red Cross Roll Call**

Relief in seventy-seven disasters at home and twenty in foreign lands; assistance to an average of 62,000 disabled ex-service men and their dependents each month; welfare work in many fields; training of thousands of life savers and first aid experts; all these and many others are among the services rendered the past year.

Because of the constantly increasing demands on its many services, at the time of its eleventh annual membership roll call from Armistice Day through Thanksgiving—November 11-24—The American National Red Cross will seek an enrolment of 5,000,000 adult members for the coming year.

Science News-Letter, November 5, 1927

## PHYSICS



JOHN AUGUST ANDERSON

**A Modern Jove**

Jove, so the old mythologies tell us, used to entertain himself by hurling thunderbolts down at the earth. The only difference between this performance and that accomplished by Dr. Anderson (described in our leading article of this issue) is that he hurls his thunderbolts into fine iron wires. And surely the results entitle them to be called thunderbolts.

Exploding wires is not his only claim to fame, however. Out in California plans are rapidly coming to fruition by means of which a chain of seismograph stations will keep earthquake experts informed of the state of the earth's crust under them, much as the barometer enables the weather man to keep tabs on the air above him. Perhaps eventually earthquakes may actually be predicted. What concerns us now, however, is that the seismographs are of a type known as the "Wood-Anderson," after Dr. Anderson and his colleague, Dr. Harry O. Wood, who jointly developed them. This instrument has filled the need for a small, inexpensive and reliable seismograph.

It is as an astronomer, rather than a physicist, that Dr. Anderson classifies himself in "Who's Who." It was as such that he traveled to Sumatra with the party from the U. S. Naval Observatory in January, 1926, to photograph the flash spectrum of the eclipse at that time. In 1905 he traveled to Spain with astronomers from the same institution for the same purpose.

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## CHEMISTRY

**Nordic Power is Chemical**

By EDWIN E. SLOSSON

The most momentous movement in modern history is the spread of the power of the northern European branch of the white race over the entire world within the last 150 years. These people are now pre-eminent in the political, military, industrial, commercial, scientific and literary sense. Practically, there are only four countries that are not under their control: China, which is too numerous, Japan and Turkey which are too war-like, and Abyssinia which subsists by sufferance. This unparalleled expansion of imperialism is due to two factors; one, internal and the other external. The first is the native ability of the white race, and the other is their application in commerce and industry of the laws of gases and particularly Gay-Lussac's law that the pressure of a gas varies with the absolute temperature.

Modern civilization is based upon molecular anarchy. By releasing the atoms from their confinement in liquids and solids, they attain in the form of a gas absolute independence and democratic equality. That is to say, the development of modern civilization and the expansion of Nordic stock throughout the world is essentially a chemical reaction. It is the expansive force of gases released at high temperature from gunpowder and nitrocellulose that has enabled these peoples to become irresistible in warfare. It is the expansive power of steam that has given us the stationary steam engine, the locomotive and the steamship. It is the expansive power of water and carbon dioxide that has given us the internal ignition engine, the automobile and the aeroplane. The expansion of gases is, therefore, the principal physical factor in the world-wide expansion of north European races. These expansive gases have been produced from fossil fuel, coal and oil, which are limited in amount and capricious in distribution.

Suppose then our race should be deprived of this physical and external source of its power. Would then the internal and psychical factor suffice to maintain our present supremacy? For some twenty-five hundred years the question has been in dispute whether the rise of a nation is due to its natural resources or to its native ability, to the physical or psychical factor. Obviously

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