mittee also considers the following innovations desirable:

A certain decentralization of the general forecast work of the Weather Bureau by the establishment of more numerous district forecast centers in place of the five now existing.

An extension of climatological work looking toward long-range forecasting.

Efforts toward cooperation with other countries in the Northern Hemisphere, particularly Canada, Mexico and Russia (Siberia) in securing appropriate meteorological data which will disclose the movements of major air-masses over all these areas, in the interest of increasing the time range of weather forecasting.

"Postgraduate" training for Weather Bureau meteorologists, which will give their scientists the benefits of the best university and research institution training, keeping them constantly up to date in their information and methods.

Establishment of a permanent Weather Bureau Committee, composed of four or five of the outstanding scientists of the country, to advise on matters of weather service and policy.

The committee, which has spent several months of intensive study and conference on Weather Bureau problems, consists of Dr. Isaiah Bowman, chairman of the National Research Council and director of the American Geographical Society; President Karl T. Compton of Massachusetts Institute of Technology; Charles D. Reed, observer at the U. S. Weather Bureau Station, Des Moines, Iowa; and, as chairman, Dr. Robert A. Millikan, director of the Norman Bridge Laboratory of Physics, California Institute of Technology.

The committee was appointed by the Science Advisory Board, which is a functional organ of the National Academy of Sciences and the National Research Council. The Board and its committees also have in hand other science problems of the national government, on which reports will be made later.

Science News Letter, December 9, 1933

ARCHAEOLOGY

Masterpiece of Da Vinci Lost Four Centuries Reported Found

UNRECOGNIZED for four centuries, one of the long-sought masterpieces painted by Leonardo da Vinci has been found and identified, it is announced by Prof. J. D. Paulson of North Carolina State College.

From Leonardo da Vinci's long art career only two paintings have survived that critics universally agree are the work of his brush. To these two, the Mona Lisa and The Last Supper, must be added an important third, if Prof. Paulson's identification is accepted. The picture is the Birth of Christ. It was once among the Russian royal art treasures in the Hermitage of Petrograd. It is known as a painting by Botticelli and goes under the title The Adoration of the Kings.

Prof. Paulson, who has made a special study of obscure inscriptions on famous paintings, especially those possibly by da Vinci, finds a number of such identifying marks on the painting. Faint as they are, Prof. Paulson declares that they are visible to any average eye. Photographic processes using the proper color filters and panchromatic plates bring out the writing further.

These inscriptions are names and monograms marked on the painting to identify certain persons depicted on it. Among the group of kings and attendants kneeling before the Christ Child, the artist worked in the faces of a number of personages of his day, Prof. Paulson explains. These included the Emperor Maximilian, for whom the picture was painted, the French King Charles the Eighth, who was in Milan planning the invasion of Italy, the Duke of Milan, who died the year after the picture was finished, and a full-length portrait of Leonardo himself showing how the great artist and scientific genius looked in his prime. The Leonardo portrait is said to be marked with his monogram and the date 1493. Prof. Paulson reports also finding Leonardo's device LDAV on the painting.

As corroborating evidence that the painting is by Leonardo, Prof. Paulson says that "it is mathematically balanced, based upon a perfected geometric skeletal structure, contains some passages of supreme delicacy, and includes portraits of an assemblage of persons which occurred only in Milan at the time when Leonardo da Vinci was working there."

Science News Letter, December 9, 1933

RADIO

Inch-Long Radio Waves Interest Marconi

WHEN Guglielmo Marconi, the father of radio, visited the California Institute of Technology a few weeks ago he was most vitally interested in the experiments of Prof. G. W. Potapenko, who has developed a short wave generator.

Senator Marconi has been using 50 centimeter waves and was delighted to learn from Prof. Potapenko how to generate shorter ones down to 3 centimeters, only slightly longer than an inch. Prof. Potapenko's method has an additional advantage in providing very steady oscillations—an important feature not obtainable by older methods, but necessary for precise measurements.

The reason Senator Marconi wants short waves is that they can be concentrated in a beam like a searchlight beam. This saves energy and makes secrecy possible in wireless communication. To make a reflector for electromagnetic waves such as radio waves or light waves, one needs a mirror larger than the wavelength. This is easy for light but is inconvenient for any but the very short radio waves.

Prof. Potapenko is not working on communication problems at the moment but is applying his generator to high frequency magnetic and electric experiments. This field is almost unexplored, in spite of the fact that Dr. R. A. Millikan performed some of his earliest work along this line more than 35 years ago. The problem was to find out how the electromagnetic waves are absorbed by the molecules of various substances. Prof. Potapenko has only recently settled the matter and found that the molecules are rotated by the waves and relax gradually to their original position. The energy of the rotation is taken from the waves. When the frequency of waves is above a billion a second much energy is absorbed. This shows that the molecules take less than a billionth of a second for their relaxation time. The bigger molecules are more sluggish than the smaller.

Science News Letter, December 9, 1933

Although the first of the sunspots of a new cycle appeared last month, Mt. Wilson Observatory observations on Friday, Nov. 24, showed that there are spots of the old cycle still appearing on the sun's face. A group of two spots was found.