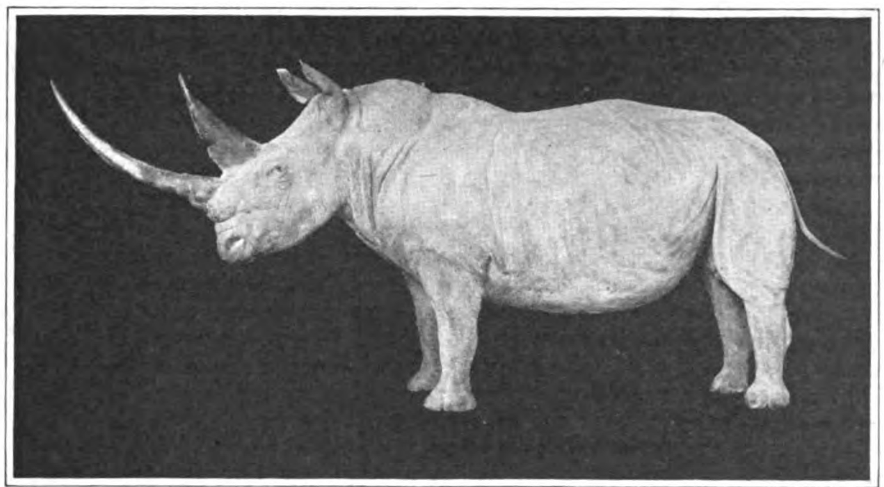
The Finest Specimens of White Rhinoceros in Africa

The American Museum of Natural History, New York, has placed on exhibition on the second floor a unique series of skulls and horns of the rare white, or square-lipped rhinoceros. At the beginning of the last century the white rhinoceros was common in South Africa, but the rapid progress of civilization has brought about its practical extinction, until only a few are left on a preserve. In 1900, Major Gibbons quite unexpectedly discovered some of the beasts far northward on the left bank of the Nile, in the Lado territory between the Belgian Congo and the Sudan. During his famous African trip, Colonel Roosevelt obtained some, two of which he presented to the American Museum. Messrs. J. Pierpont Morgan and John H. Prentice have also made gifts of white rhinoceros material to the Museum.

It often happens that hunters make terrific inroads on even such rare game, and while the Belgian Government forbade sportsmen to shoot more than a single specimen, the natives were permitted to slaughter them indiscriminately for food. The Congo Expedition, maintained in Africa for six years by the American Museum, had the opportunity of gathering bones and skins from the natives' spoils, and by this means the great natural history museum now owns the largest and most complete collection in existence of skulls and skeletons of the white rhinoceros, including an uninterrupted series from the unborn young to the old record bull. The unique set of horns shows not only the gradual development from the single horn of a new-born calf, weighing only an ounce, to the heaviest pair, weighing thirty-eight pounds, but also a great variety in form, which ranges from the perfectly straight to the nearly semi-circular.

In the campaign waged by the Congo Expedition, this collection formed the most convincing proof of the necessity of securing a more saisfactory protection for these animals from the reckless slaughter by native hunters.

Great progress has been made by the American Museum in the preparation of a habitat group, for which all the necessary materials have been collected. A young specimen and the record bull, with a horn forty-two inches long, have been completed, and the largest female, with a horn over thirty-six inches long, is almost ready. These are the finest specimens of the white rhinoceros ever gathered, and the group will be a worthy addition to the interesting habitat groups which draw so many visitors to the exhibition halls of the American Museum of Natural History.



A record specimen of the white rhinoceros bull having a horn 42 inches long

Part of the series of skulls and horns of the white rhinoceros in the American Museum of Natural History at New York

The Sign of the Zinc Pole in a Battery

The vexed question has once more cropped up whether the zinc terminal of a primary battery should be called the negative pole—which is the actual common practice—or the positive pole. The problem rather presents itself under a different aspect, as we shall see, but it comes down to this question. Scientists have changed their standpoint several times since the days of Volta. The introduction of the secondary battery caused renewed difficulties to the student already bewildered by the disagreement of investigators. The plate, which was the anode or positive pole during the charging period of an accumulator, became the negative electrode during the discharge, which is the essential period for an accumulator. Of late there has been fairly general agreement as to the sign of the zinc pole or of the terminal on the electrode which corresponds to the zinc of a primary battery, and it does not seem advisable to disturb that agreement by renewed discussions as has recently been done chiefly by American electrochemists like G. N. Lewis. The controversy is as old almost as the fundamental experiments of Galvani and of Volta of 1786. Galvani suspended frog legs by a copper wire from an iron railing and observed that the legs contracted when they happened to come in contact with the iron; he was studying the influence of electricity on nerves, and he ascribed the phenomenon to animal electricity. Volta opposed this view, and maintained that the essential thing was the direct or indirect contact between the iron and the copper. Both views found supporters at the time; later, Volta's theory conquered. At present few scientists probably would care to express their opinions on animal electricity and on contact electricity in a few words. In Volta's pile the zinc was called the positive plate and the copper the negative plate. The pile soon made room for the battery of cells, however, and in cells the chemical forces between the metal and electrolyte rather than the contact forces between the metals are considered the source of the energy. Berzelius already designated the more oxidisable of two metals as electropositive with respect to the other. But in the Daniell cell the zinc pole is marked negative, and the copper pole positive. That is because we have to distinguish between the current in the cell, which flows from the zinc through the electrolyte to the copper, and the current in the outer circuit which flows from the copper to the zinc. Now the external circuit gives us the current we want for doing work, and as this explanation brings the dynamo and the primary battery into line as sources of electric energy, it finds favor with engineers and physicists. It is less acceptable to the electro-chemist, however, who has to calculate the electrolytes and who, in corrosion problems, is more interested in the phenomena of the internal circuit than in those of the external circuit. The rule just given for fixing the polarity is, moreover, based on an argument which really does not help us much, that is, that the current flows from a place of higher potential to one of lower potential. On that rule the same zinc plate has the higher potential of the two metals within the cell, and the lower without the cell. The real difficulty is about the single potentials. Some scientists said that a zinc electrode assumed a negative potential in a solution of its sulphate, others preferred to call it positive. According to Nernst's theory of solution pressure, zinc sends positive ions into its sulphate and thereby becomes negative; others called it positive for that reason, and objected that, since zinc has more free energy than copper it must be considered positive. In a paper on "The Sign of the Zinc Electrode" (Journal of Physical Chemistry, May, 1918), Professor Wilder D. Bancroft tries to show that the difficulty is not real, and that it vanishes, when we say that the chemical potential of the zinc in the cell is greater than the chemical potential of the copper, but its electrical potential is less. With an electrode which forms anions, he proceeds, the two potentials have the same sign, with electrodes which form kations they have opposite signs. His arguments, we are afraid, do not clear up the difficulty, though the distinction between chemical and electric potential may concisely have been stated by Gibbs, as he says.—*Engineering.*

War Substitutes for Soap in Germany

As is well known, the continued provision of oils, fats and their associated products, soap and glycerin, has occasioned our enemies the greatest concern and almost every known method of augmenting the supply from internal sources has been resorted to, such as the oxidation of lignite-tar oils and the treatment of ozonides. Various substitutes for soap have been devised, made of clay, kaolin, chalk, etc., mixed with silicate of soda, glue, and an antiseptic such as boric or salicylic acid, with sufficient saponin (usually quillaya bark) to produce a lather. The Kriegs Anschuss placed on the market a soap consisting of fatty acids and saponified resins with clay and sodium carbonate at a maximum price of 20 pfennigs for 50 grams per head per month. This is supplied to hospitals, doctors, and certain groups of workmen. Such industries as textiles, leather, bleaching and dyeing have been seriously incommoded, and recovery processes have been rigorously insisted upon. The deficiency of fats has of course affected the production of glycerin. Its therapeutic employment has been practically forbidden, and its recovery whenever possible is compulsory. A solution of calcium chloride is employed as a substitute in certain industries. Ethylene glycol has replaced it as a medicament, and in the preparation of films, in printing, and in lithography. Various vegetable decoctions stabilized by antiseptics are also used. Concentrated solutions of lactate of soda and of potash, under the names of "perglycerin" and "perka-glycerin," have been introduced into pharmacy.—*Nature.*

Japanese Black Mint

The Japanese black mint plant, from which menthol is obtained, is cultivated in two widely different climates. Some 92 per cent of the total production is grown in the northern island (Hokkaido), which has an average yearly rainfall of about 38 inches and mean summer and winter temperaturse of 60° F. and 22° F. respectively. The remaining 8 per cent is grown on the main island (Okayama and Hiroshima), where the rainfall is 42.5 inches and the average temperatures 75° F. and 38° F.

The mint requires a light, well-drained soil. The roots are planted (in Hiroshima and Okayama), at the end of November and the beginning of December. The plant attains its full growth during the summer months, and is cut in the latter part of July, during August, and in the early part of September, three cuttings being made during the season. The third cutting yields the greatest percentage of oil and menthol crystals. The leaves are steamed and pressed in barrels by the planters, who then ship them to the menthol factories, of which there are 34 in various parts of Japan. There the oil is extracted from the leaves by a process of freezing and pressing.

Attempts have been made at various times to introduce the living plants from Japan into the United States, but so far unsuccessfully, as they cannot stand the voyage. Measures are now being taken to obtain the seeds, but these are very scarce, as the plant is usually propagated from root cuttings.—*U. S. Com. Rep.*

Thimbles Are Scarce

The war is responsible for a dearth of metal thimbles. France, Italy, Spain and Portugal are absolutely without supplies. Before the war, Lille, Nuremberg and Vienna manufactured thimbles for all those countries, and there are only four manufacturers in England—three at Birmingham, and one at Redditch—but the metal shortage has brought their business almost to a standstill. The trade does not consume a great weight of metal, but the number of thimbles on order looks formidable enough. France alone is in want of 450,000 gross.