Unquestionably the new cup defender is the most interesting 90-foot racing yacht that Herreshoff has built. She is certain to be fast, and under certain conditions extremely fast. Judged on her lines, power, and huge sail plan, she should beat "Shamrock III.;" but the latter boat, up to the hour of her disaster, was certainly doing wonderful work against "Shamrock I.," herself a greatly improved boat.

Where the Mississippi Floods Originate.

Those who look upon the great yellow river that flows past the city of New Orleans, never realize what a vast flood of water and what an enormous assemblage of forces are concentrated in its movement. The area drained by this river and its tributaries equals one-third of the territory of the United States. This area may be divided into the following drainage basins, with their respective areas:

	Sq. miles.
The Missouri River	518,000
The upper Mississippi	169,000
The Ohio River	214,000
The Arkansas and White	189,000
The St. Francis River	10,500
The Red River	97,000
The Yazoo River	13,850
The small tributaries	28,688

This immense area covers some twenty-eight States of the Union, extending from the 35th to the 50th parallel of latitude, and from the 79th to the 114th meridian of longitude. Although the greatest tributaries come in from the West, draining as they do the wide regions extending to the Rocky Mountains, fortunately for the people along this mighty river the rainfall over that region is small; otherwise the Mississippi Valley would be wholly untenable. If the Missouri, which is 3,000 miles long, carried as much water in proportion as does the Ohio, which has a length of only 1,200 miles, the main river would be five times as great as it is.

The Ohio is the chief factor in producing a flood, but alone its waters are comparatively harmless when they get into the main river. When they are supplemented by freshets out of the Arkansas and the Red, however, they become dangerous. The upper Mississippi is only to be feared when its frozen waters break into a thaw earlier than usual. The Missouri waters seldom come before June.

The Current Supplement.

The current SUPPLEMENT, No. 1425, opens with an archæological article on the construction of the Roman camp at Lambessa. The article is well illustrated by two handsome photographs. "New Stereopticon Apparatus" is the title of a description of new projecting devices used in France. M. A. Dastre tells much that is instructive of salt and its physiological uses. The rug industry of the Caucasus and of the Transcaspian countries is described in a picturesque account. By far the most important electrical article in the issue is that by Emile Guarini on the "Development of the Marconi System of Wireless Telegraphy," which article is to be continued through three numbers of the SUPPLEMENT. Each installation will be fully illustrated with diagrams and photographs. Don Maguire presents a vivid picture of the terrors of Death Valley. Alcohol figures prominently these days as a fuel. For that reason two articles, one on the use of alcohol as a fuel and illuminant, the other on the results of tests of alcohol motors in Germany, should not be without interest. A new process for making briquettes is described. M. A. Verneuil's paper on the artificial production of rubies by fusion is published.

Excavation of Prehistoric Bones.

Prof. Warren Morehead, of Phillips Academy, Andover, Mass., has discovered on a farm east of Hopkinsville, Ky., what is presumably the burying ground of a prehistoric people. Ten skeletons in a fair state of preservation were exhumed. The bones are probably those of an extinct race of mound builders. The skeletons were discovered in receptacles built of flat stones. Stone utensils were also found.

A Scottish power scheme of great interest is that which has been recently approved by the British Parliament, and which will soon be under way. It is proposed to generate electricity in the vicinity of the coal mines, and to transmit it to the city of Glasgow and industrial establishments along the Clyde in the neighborhood of that city. Three generating plants will be established, located at Yoker, Motherwell, and Crookston, and the ultimate capacity of this trio will be 25,000 horse power. The two first mentioned will be built at once, but the initial installation will be only about half of the total contemplated.

The Maryland School for the Blind has issued the first general dictionary ever published for the use of the blind. The work comprises 18 volumes, and contains definitions of 40,000 words.

Correspondence.

Bird Catching by a Snake.

To the Editor of the SCIENTIFIC AMERICAN:

Allow me to add a chapter to your late article on snakes. Some thirty years ago a Shoshone Indian told me that a rattlesnake used the rattles on his tail to catch birds. In less than two hours I saw an illustration of it. The snake hides himself in the tall grass and imitates the buzzing of a bee. The insectivorous birds, such as the phœbe and kingbird, are attracted by the sound, and become an easy prey for his snakeship. I have seen rattlesnakes concealed in the dense foliage of trees twenty feet from the ground practising the same deception on the birds and getting the bird every time. G. A. FITCH.

Reading, Cal., March 22, 1903.

Clouds of Pollen Dust in the South.

To the Editor of the SCIENTIFIC AMERICAN:

In your issue of this date reference is made to a shower of volcanic dust that fell in the city of Athens, Ga., March 17.

Similar showers fell in this district. It is a common occurrence in all the great pine belts when their pollen is blown about in clouds. I send you samples of this dust as it falls from the flowers, and evidence of its deposit on leaves that floated in ditches.

Closer investigation might identify the Georgia shower as the result of a similar cause.

Biloxi, Miss., April 4, 1903. JAMES BRODIE.

[Our correspondent is undoubtedly correct in his theory. Letters have been received from correspondents in other parts of the South confirming his statement. The dust on the leaves sent by our correspondent closely resembled finely powdered sulphur.—ED.]

Manganese on Manhattan Island.

To the Editor of the SCIENTIFIC AMERICAN:

In the spring of 1901, while noticing some geological conditions on Washington Heights in Manhattan Borough, I found on 146th Street, between Broadway and Amsterdam Avenue, some sharp points of schist, so black as to be noticed even from a distance. At first sight I thought they were smoked by bonfires, but after special attention I found them too many in number and varieties and in impossible locations for such an explanation. On closer examination they were found to be thin weathered incrustations of schist, varying from yellowish-brown to jet black, and they were found not only in that neighborhood, but almost all over the Heights at certain points on fresh-cut surfaces well exposed to the sun.

About two months before this, I had already found at 161st Street and Broadway, a bluish-black mineral which seemed to be psilomelane or wad by the outward look, and had kept specimens in my collection. Thought about this mineral and the black incrustations of the schist suggested to me that I test them chemically by a few drops of hydrochloric acid and potassium iodide and starch test paper. The test proved the mineral and specimens from the black incrustations to be wad or black oxide of manganese. This was a sufficient hint to suggest the existence of silicate of manganese in the schist, which being decomposed must be found deposited as wad somewhere on the island or in the harbor. I followed that, too, and at many fresh cuts found the schist plainly showing the rhodmite ($MnSiO_3$) or tephroite (Mn_2SiO_4) while their decomposition could be noticed at different points, according to the length of the time of their exposure, in different shades of bluish-gray or red to brown and black. According to my very limited observation, there are two traces of decomposition of the oxide on the Heights, one at a crevice of the schist between 161st and 162d Streets, on the east side of Broadway, whence a specimen can be seen at the Museum of New York University, and the other in a glacial sandy deposition at 158th Street and Broadway, about six feet below the surface. The main deposition must be sought for elsewhere. It may be under some glacial debris on the island or in the harbor.

Manganese oxide being one of the most valuable minerals of the day, it is well worth the special attention of the city surveyors to locate the main deposition if possible. M. A. YESHILIAN.

New York City.

A Scheme for Pumping Water 380 Miles in Australia.

To the Editor of the SCIENTIFIC AMERICAN:

On Monday, January 19, there was opened at Kalgurli, West Australia, what is claimed to be the longest and biggest pumping scheme in the world. The plant, which is now in full working order, will pump 5,000,000 gallons of water daily, 387 miles, from the Helena reservoir near the sea, to the big terminal reservoir at Bulla Bulling in the heart of the gold fields. To do this there are over 380 miles of 2½-foot pipes, with twenty pumping stations along the route, at which sixty-five big pumping engines are in use.

The work has been made necessary by the great scarcity of water on the famous Kalgurli and Coolgardie gold fields. This district, which is over 400 miles inland, and which embraces such big mines as the "Great Boulder," "Ivanhoe," "Lake View Consols," and "Association"—whose output of gold is measured, not by ounces, but by tons—has a very scanty rainfall, no rivers, and no fresh water lakes. Even the water in the wells is almost always salt or brackish and unfit for general purposes. The residents, therefore, have had only two methods by which to supply their wants—dams to catch the surface water, and condensing plants by which the salt and brackish water was purified. The first of these was unreliable and the second expensive.

In 1895 the then Premier of the State, Sir John Forrest, during a trip, made in very hot weather, to the gold fields, saw plainly that, with the growth of the district, a good and reliable water supply was an absolute necessity. Out of this trip came the present scheme. The great difficulty was the fact that the nearest permanent water was 350 miles away, and that no supply by gravitation was possible owing to the high level of the gold fields. After much surveying and exploratory work a pumping scheme was decided on, and in 1898 tenders were accepted for the work. It speaks well for all concerned that only seven years have elapsed between the conception and completion of the work.

The cost of the scheme will total about £2,850,000, and of course the work of pumping will form a big annual charge. Some 64,000 pipes were used in the work, all being made by Messrs. Mephan Fergusson's (Melbourne) patent locking-bar process, which was illustrated and explained in the SCIENTIFIC AMERICAN some time ago. The manufacture of these pipes used up 9,000 tons of steel plates, and 4,000 tons of Trinidad asphaltum were used for coating them. The pipes are laid in shallow trenches, and owing to the great heat in the summer, trouble was caused at times by leakage, through expansion.

At the supply head, Helena, a splendid reservoir has been formed in a valley, with a huge weir, by which the water is banked back some eight miles. This reservoir impounds 4,600,000,000 gallons, and will be fully equal to all demands for very many years. At each of the pumping stations, reservoirs with a holding capacity of 1,000,000 gallons each have been built, while at Bulla Bulling the main terminal reservoir will hold 12,000,000 gallons. The chief distributing reservoir, at Kalgurli, which is the most important gold fields center, holds 2,000,000 gallons. The towns of Boulder, four miles from Kalgurli, and Coolgardie, a few miles further south, are the other leading centers within the immediate supply area.

Owing to the heavy cost of pumping, the charges are heavy. Interest, sinking fund, maintenance and working expenses will total nearly £300,000 per annum, reckoning on a supply of 2,500,000 gallons daily. To meet this the average charge for water will be six shillings and sixpence per 1,000 gallons. This looks heavy, and would be considered oppressive under ordinary circumstances. But the conditions on the gold fields are far from ordinary, and even with this charge some of the mines calculate that they will save three or four shillings per ton in dealing with their stone. If the maximum supply—5,000,000 gallons daily—be needed, the charge could be reduced to about four shillings per 1,000 gallons. It is believed that, owing to the high price of food, it will even be profitable to use the water for irrigation purposes on a fair area of land. Altogether the scheme is a great one, carried through in the face of much opposition and criticism, and there is a general hope that it will mark the beginning of a new era on the gold fields.

FRANK S. SMITH.

Noorat, Terang, Victoria, Australia.

Test of the Lebaudy Airship.

Dispatches received from Europe state that the Lebaudy airship made two ascents on the morning of April 13. On its first trip the airship covered 19 kilometers, and attained an altitude of 200 meters. On the second trip, made a half hour later, 300 meters altitude was attained, and good progress made against a strong northeast wind. A description of the airship has been published in these columns.

Flooding a Burning Mine With Sea Water.

Sea water is now used to extinguish the burning colliery of the Dominion Coal Company, Nova Scotia. Through a sluice cut from a dam on the shore of the ocean, sea water is pouring in at the rate of some three and a half million gallons an hour. The pit is flooded up to the seventh level, but four more must be reached before the fire can be extinguished. In other words, 450,000,000 gallons of water will be needed, and six days' time required.