Correspondence.

On the Strength of Emulsions for Killing Insects.

To the Editor of the SCIENTIFIC AMERICAN:

In the article entitled "The Annual Battle with Insects" in the SCIENTIFIC AMERICAN of July 10, just received, the recipe for kerosene emulsion is so concentrated as to be disastrous in its results if used as given. After thoroughly emulsifying this by repeatedly pumping it through a small force pump, it should be diluted with from ten to fifteen parts of water before use.

ALFRED E. HALL.

The New Supplement Catalogue.

To the Editor of the SCIENTIFIC AMERICAN:

We have received the bound copy of your SCIENTIFIC AMERICAN SUPPLEMENT Reference Catalogue. We have found its predecessors very valuable aids in our library and constantly in use. We judge from a casual glance at the new book that it is intended to absorb the former editions, and in that case you may send us, with bill for 25 cts., another copy. We have full sets of your three publications (SCIENTIFIC AMERICAN, SCIENTIFIC AMERICAN SUPPLEMENT, and SCIENTIFIC AMERICAN Building Edition). We have a large collection of engineering books and periodicals, but nothing more valuable or more frequently referred to than the SCIENTIFIC AMERICAN SUPPLEMENT.

CHARLES ORR, Librarian.

Case Library, Cleveland, O., July 9, 1897.

Forcing Plants by the Use of Carbon Dioxide.

To the Editor of the SCIENTIFIC AMERICAN:

Geology teaches that the enormous difference between the luxuriant vegetation of the carboniferous era and that of our time is due entirely to the difference in climatic conditions.

During the carboniferous era the temperature was much higher than at present; moisture was more evenly distributed, and the atmosphere contained 7 or 8 per cent of carbon dioxide, while it now contains only about 1 part in 2,500.

The keeper of the modern greenhouse, in order to feebly imitate nature in the production of luxuriant vegetation, restores two of the climatic conditions—heat and moisture.

The result, of course, is gratifying; but how much more so might it be did he not entirely overlook the third and possibly the most important condition, viz., the carbon dioxide?

We find in all we undertake that the closer we imitate nature the better results we secure. There is no reason to suppose that the artificial rearing of vegetables is an exception to the rule.

Nearly all greenhouses are heated during the winter months in some form by the combustion of coal. The product of this combustion, if the soot were removed, is nearly all carbon dioxide. If an ordinary greenhouse were made approximately airtight and the carbon dioxide from the furnace conducted into it, the other conditions of temperature and moisture being maintained as at present, we should have, on a small scale, the climate of the carboniferous era, and we might hope to imitate—also on a small scale—its rapid production of vegetables.

The foregoing is offered through the columns of the SCIENTIFIC AMERICAN as a suggestion to some one who may have the time and opportunity to make an experiment of the kind suggested.

WILLIAM P. STEWART.

[Our correspondent is referred to standard works on physiological botany for the details of experiments upon the supply of a larger per cent of carbon dioxide to the air in which plants are growing. A practical difficulty in applying the treatment suggested on a large scale to greenhouses would be the impossibility of working in such an atmosphere to care for the plants. It would be certain death to any one entering such a place.—EDS.]

Horseless Carriage Works Burned in Paris.

The works of the Carriage Builders' Society, in the Rue Pouchet, Paris, caught fire on July 12, and sixty horseless carriages were destroyed. The total damage was about $200,000. At present it is believed that the fire was of incendiary origin. It is a well known fact that the Paris cab drivers are very much opposed to the introduction of horseless carriages, which they believe are destined to interfere with their means of livelihood.

Meeting of Electrical Engineers.

A meeting of the American Institute of Electrical Engineers is to be held at Eliot, Me., July 26, 27, and 28. Besides the inaugural address of the president, Dr. Francis B. Crocker, on the "Precision of Electrical Engineering," papers are expected from Prof. Elihu Thomson, Prof. W. E. Goldsborough, Prof. Robert B. Owens, Prof. J. P. Jackson, Charles P. Steinmetz, Putnam A. Bates and Walter C. Barnes, Caryl D. Haskins, Adam Bosch, H. M. Gerry, Jr., Horatio A. Foster, W. H. Freedman, and Herbert Lloyd.

A New Telescope at Greenwich, England.

During the past three or four years the observatory buildings at Greenwich and their equipment have undergone a very considerable change; that is, internally. Viewed from the outside, the visitor approaching it from the railway sees no change. It is only when the steep ascent has been climbed and the entrance gate has been reached that an extra dome or two can be noticed of that green tint peculiar to the place. But once inside the high inclosing wall, it is seen that there is little in common with the building that was erected over two centuries ago for John Flamsteed, the first astronomer royal.

The old building has not been interfered with, but in the grounds to the right a new series of buildings has been erected. A small but handsome red brick building is first seen, in which is a new altazimuth, which has only recently been erected and has not yet been got into working order. Under the largest dome is the 28 inch refractor, which has been in working order now for about two years. The next smallest dome covers the new building, which has been prepared for the new telescope presented by Sir Henry Thompson, now being placed in position. This new building is the initial portion of what will be, when completed, a very handsome block. That which is being got ready for use is a handsome red brick building, to which wings will be added when funds are forthcoming. The observatory being in the hands of the Admiralty Department, the money requisite for improvements is not readily obtainable. The needs of our first line of defense are so great that the Admiralty has not much interest in the observatory beyond depending upon it for its supply of duly attested chronometers for the navy. The 28 inch telescope which was added three years ago was not provided until it was absolutely necessary. And then no building was forthcoming to put it in. Determined not to lose the telescope, which was too big for the building, Mr. Christie devised a new dome, which gave the extra space required. This liberated the old dome, so long a feature of the observatory, and that is now to be used for the new 26 inch telescope just acquired. It is really small for that, but the best will have to be made of it.

The telescope which Sir Howard Grubb has now completed is for spectro-photography. The spectrum, as everybody knows, is a scattering of the different colors of light. The examination of these gives much information as to the body that is being looked at; and it can be done by viewing through an eyepiece. But it is far more convenient to take a photograph, which can be examined at leisure. When the 28 inch telescope was fixed, a spectroscope was attached; but work with that was given up about eighteen months ago, when Sir Henry Thompson promised £5,000 for a special telescope for this work. The new telescope will take some twelve months to get into working order. When it is ready, it will be assigned a special duty. There are, of course, several branches of spectro-analysis which can be taken up. One is to examine the chemistry of objects by the analysis of its light. What will be taken up here is an examination of the spectrum as a means of determining the rate of motion of the body looked at in the line of sight—how fast it is approaching or receding. This is the work which Mr. H. F. Newall has been carrying on at Cambridge with a 24 inch telescope.—St. James's Gazette.

Weight Reduced by Riding.

The following facts were contributed by a civil engineer to the L. A. W. Bulletin, and are of sufficient interest to justify republication:

It may be of some interest and value to our members, or to those afflicted, like myself, with too much avoirdupois, to know of an actual case of reduction of weight by riding a wheel. The weight was taken in the morning after the bath, without clothing and as nearly as possible under like conditions. The scales weighed to half ounces, so the weights may be considered accurate. I have platted the daily mileage made on each day at the bottom of a diagram, to show, if possible, the relation between mileage and weight. In most cases the fall in weight succeeding a long ride is quite marked, and a few days' neglect of the wheel shows a rise in weight.

I would state that on one evening in August, on a three hours' ride, I lost five pounds. On this occasion it was extremely hot, and the perspiration poured in a stream from each sleeve. Under these conditions of copious perspiration, and as copious drinking of water, all rheumatic tendencies disappeared. At present writing, after several months of comparative physical idleness, my weight is eight pounds less than when I began to ride a bicycle in June, 1896. No attempt whatever was made by me to diet. The results are entirely attributable to the wheel. My rheumatism is, however, returning, and I long for the time when the roads will again be passable for a bicycle.

Highest weight, June 15.	223 pounds, 2 ounces.
Lowest weight, September 4	212 pounds, 6 ounces.
Longest ride.	17 miles.
Average daily mileage.	4·25 miles.
Average loss per day	2 ounces.
Greatest loss in one day.	5 pounds.

Science Notes.

Sir John Kirke, whose name was associated with African discovery from the days of Livingstone, Burton, Speke and Grant to those of Stanley, has received the degree of doctor of science of Cambridge University.

The Senate has agreed to the provisions in the tariff bill admitting free of duty books in foreign languages and such as are devoted to scientific researches, books and scientific instruments imported for public and educational institutions.

The earliest estimations of the distance of clouds from the earth were made by the Jesuits Riccioli and Grimaldi, at Bologna, says Prometheus. They used the trigonometric calculation from observations at two points, which is still the favorite method.

An Arctic expedition, led by Mr. H. J. Pearson and two other English gentlemen, recently started for the Barents Sea. It will explore Nova Zembla and the island of Waigats as well as the great Tendra of the Samoyeds, from the Ural Mountains to the Petchora River.

The volcano of Kilauea attracted notice on the evening of June 24, by a series of terrific explosions which were felt for thirty miles away. Almost immediately after there was seen, by persons living along the Kau coast, several lava fountains in operation, and the lava lake continues to rise rapidly, and is now about 500feet deep and increasing in activity.

The Paris correspondent of the Medical Record tells us that in France "ideas regarding the treatment of fevers have undergone a change during the last few years. For instance, considering fever as a symptom rather than as a disease, even in certain specific fevers, French practitioners respect it, as they say. That is, they regard it as a kind of pathological compensation, an effort of nature to throw off morbid process, and hence to be looked upon as benign, and if not actually encouraged, at least left to itself. But it should not be treated actively."

A fire has occurred, of all curious places, in the ice-cold storage vaults of a New York firm. While the firemen were at work a vessel containing ammonia used in the refrigeration exploded, instantly spreading its fumes in all directions. For several hours the firemen fought the flames in the cellars, working in a freezing atmosphere amid stifling smoke and ammonia vapor. Ultimately, however, the fire was subdued. One fireman lost his life, while two were taken to the hospital, suffering terribly from the effects of the ammonia and the intense cold.

A compound of argon and water, in analogy with similar compounds of nitrogen or oxygen and water, has recently been obtained by P. Villard, in the same way as these latter are prepared. At a pressure of 150 atmospheres, argon and water were brought into contact. If then any part of the vessel containing the substances was cooled to 0° C., the thin film of water on the surface united with the gas to form colorless crystals which, at a pressure of 210 atmospheres, were decomposed at +8° C., at 105 atmospheres by a temperature of 0° C.—Comptes Rendus de l'Académie.

East Friesland, abutting on the North Sea, abounds in peat bogs. The beds of peat are in many parts from fifty to sixty feet deep, but owing to the low heating value of the peat, it has hitherto been found impossible to secure a market for it, in the face of the ample supplies of good coal from the not far distant Westphalian fields. The district is very sparsely inhabited, and is without any important industry. Dr. Frank suggests that the peat deposits should be utilized on the spot for the production of calcium carbide. There are large beds of limestone near Rheine on the Ems, and transport thence to the peat moors would be easy and cheap. It is estimated that thirty tons of the peat would furnish the electrical energy necessary for the production of one ton of calcium carbide.

At the French Biological Society M. Arloing has reported some interesting observations on the toxicity of human perspiration. He found as a result of making intravenous injections of natural perspirations, and also of prepared extracts of the same, that when the strength of the injection approached 15 centimeters per kilogramme in the case of the dog and 25 centimeters per kilogramme in the case of the rabbit, death almost always occurred, generally within three days, though sometimes not for some weeks, when it followed upon a state of profound cachexia. The injection of one-sixth, one-quarter, or one-third of the lethal dose led, according to his observation, to immediate and proportional effects. The toxicity varied with the environment of the subject which furnished the perspiration as well as with the mode of preparation of the extract. The perspiration secreted during arduous muscular toil is richer in toxic principles than that secreted during the ordinary circumstances of life, the degree of extra malignancy amounting to 25 or 30 per cent. All things being equal, perspirations obtained by artificial means of sudation present a minimum of toxicity; but perspiration obtained from a subject who has suffered from retention of the secretion due to cold is poisonous.