Correspondence.

Wolf's Comet.

To the Editor of the Scientific American:

Wolf's periodic comet is now well placed for observation, and it is bright enough to be visible in telescopes of moderate aperture. I send the following places to enable any who may wish to see the comet to pick it up without difficulty.

September	R. A.	Declination.
1	3 h. 33 m.	+ 24° 51′
4	3 h. 40 m.	24° 5′
8	3 h. 49 m.	22° 57′

It will be seen that the comet is moving in a south-easterly course, and from the above its path in the heavens may be traced for future dates. On September 3 and 4 it is in the Pleiades, where it may be easily found. From the Pleiades the comet moves toward the bright star Aldebaran. The comet is small, with a bright nucleus and short tail.

WILLIAM R. BROOKS.

Smith Observatory, Geneva, N. Y., Aug. 26, 1891.

The International Congress of Hygiene and Demography.

One of the most interesting and important gatherings of scientific personages that has taken place in these later days is the congress now in session in London, in the rooms of the Royal Society. The science of demography, we may here remark, relates to the statistics of population, mortality, etc. The opening address was made by the Prince of Wales, who said: "My hope is that the work of this congress may not be limited to the influence which it may exercise on sanitary authorities. It will have a still better influence if it will teach all people in all classes of society how much every one may do for the improvement of the sanitary conditions among which he has to live. I say distinctly 'all classes,' for although the heaviest penalties of insanitary arrangements fall on the poor, who are themselves least able to prevent or bear them, yet no class is free from their dangers or sufficiently careful to avert them. Where could one find a family which has not in some of its members suffered from typhoid fever or diphtheria, or others of those illnesses which are especially called 'preventable diseases'? Where is there a family in which it might not be asked, 'If preventable, why not prevented?' I would add that the questions before the congress, and in which all should take a personal interest, do not relate only to the prevention of death or of serious diseases, but to the maintenance of the conditions in which the greatest working power may be sustained."

At the conclusion of the Prince's address, speeches were delivered by representatives of France, Italy, Austria-Hungary, Saxony, and Prussia, in which all bore high tribute to the part which has been played by England in the promotion of measures calculated to preserve and improve the public health. Dr. Brouardel (France) was indeed specially emphatic:

"In the year 1837 appeared the act which rendered obligatory the registration of deaths. This act did not long remain alone. Under the impulse given by two of your most illustrious patriots, William Farr and Edwin Chadwick, you have organized a system of registration of the causes of diseases and of deaths. Certain important cities, before the law made it obligatory, obtained supplies of water beyond all suspicion of pollution, and adopted systems of removal of foul water and waste matters. In these cities, whose action cannot be too much praised, the sickness and death rates diminished rapidly; this furnished the necessary proof it was time for reform. Twenty years ago the local Government Board was established, and in 1875 had submitted to Parliament a bill for the protection of the public health. During its discussion in Parliament one of your greatest ministers (Disraeli) pronounced in the House of Commons these memorable words, which should be repeated in all countries and in all Parliaments: 'The public health is the foundation on which repose the happiness of the people and the power of a country. The care of the public health is the first duty of a statesman.' Since this, each year you have made fresh improvements in your sanitary laws; if in your eyes they are not perfect, in the eyes of the nations who surround you they are an ideal toward which all their most ardent aspirations tend. It is your example they invoke when they claim from the public authorities the powers necessary to oppose epidemics, to combat the scourges which decimate their populations. You have taken the first rank in the art for formulating laws for the protection of health; this is not all that you have done in the domain of hygiene.

"Among the diseases which one can properly term pestilential, there are, thanks to the work of the hygienists of all countries, certain ones which from the present time may be considered as preventable: such are small pox, typhoid fever, dysentery, and cholera. For one of these, the most terrible, the immunity conferred by vaccination is absolute. The person upon whom this immunity is conferred can pass through the most severe epidemics and expose himself to all sources of contagion without being affected. Who is it that thus preserves from death, from blindness, from infirmity, millions of human beings of all countries and of all races? On May 18, 1796, a date which might well be the date of a great battle, Jenner inoculated with vaccine matter, by means of two superficial incisions, the youth James Phipps. Protection against small pox belongs to you; the world will be to you forever obliged.

"Let us consider two other epidemic diseases. Is it possible to establish the conditions of propagation of typhoid fever without quoting the names of Budd or of Murchison? I am aware that in 1855 Dr. Michel de Chaumont had for the town in which he lived experimentally established the *role* played by drinking-water in the propagation of this disease. Unhappily, public opinion was not prepared, and his discovery was not listened to. In the work which we are considering, the efforts of the English school were most fruitful. May I recall the fact that it was the epidemic of cholera in 1866 in England which gave birth to the theory of its propagation by drinking-water? Was it not at that date that, under the influence of your hygienists, the lords of the Privy Council issued an order formulating the laws of prevention which we adopt to-day? Certain it is that even in England these discoveries have not immediately borne all their fruit. The anti-vaccination leagues are not yet dead. Proofs accumulated during a century have not sufficed to cure that mental blindness which is congenial. . . . Can France be represented in a congress of hygiene without recalling the name of M. Pasteur? For centuries we have asserted that epidemic diseases were propagated by means of contact, by the air, by the effluvia, by miasmata. The idea of morbific germs, if not the name, is even found in the works of Hippocrates, but in what an uncertain sense.

"The theory of contagion has passed from century to century with strange modifications; the uncertainty of the methods of research and the difficulties of observation bound up together truth and error. It remained for Pasteur to prove the existence of these germs, their form, their life, their mode of action, and by their attenuation to solve the problem of immunity. Thanks to his work, and thanks to those of his pupils, realities have succeeded to contingent possibilities. We know some of our enemies, their habits, and their mode of penetrating the body; up to this time man was conquered by these infinitesimal beings, but, thanks to recent discoveries, he will be their conqueror. When, at the beginning of a century, one can inscribe the name of Jenner, and at its end that of Pasteur, the human race may rejoice. More has been done for it against misery, disease, and death than in any one of the centuries which have preceded it."

Dr. Van Coler, the medical director-general of the Prussian army, the representative of the German government, showed the aid rendered to armies by the improvements in sanitary science.

"It is indeed with a feeling of joyous pride that from this place and in this country, where we have to trace the very cradle of all modern science of public health, I am permitted to point out how the many efforts made in the direction of hygiene radiating from England were, especially in Germany, hailed with much delight; where they received the most careful attention, and where they ever since have been most actively promoted. . . . If from our army diseases like malaria, small pox, dysentery, have completely, or almost completely, disappeared; if typhus fever and diphtheria become more and more diseases of the past, we have to be thankful for these attainments to the development and application of hygiene. . . . It is now an established fact that infectious diseases are by no means a necessary evil in the army. They are simply diseases which can be avoided, which can be powerfully opposed, and against which the science of our days battles victoriously with ever increasing success."

Proposed Observatory on Mont Blanc.

Particulars of the observatory which it is proposed to erect on Mont Blanc are given in the *Neue Zuricher Zeitung*. It will be remembered that last year M. Joseph Vallot erected an observatory and hut of refuge on Mont Blanc on the Rocher des Bosses, 1,312 ft. from the summit of the mountain; but this undertaking is now to be eclipsed by the construction of an observatory on the very summit of Mont Blanc (15,781 feet above sea level). The idea originated with M. Janssen, who stayed on the mountain some time last summer for the purpose of making meteorological observations. In conjunction with M. Eiffel, and with the support of M. Bischoffsheim, Prince Roland Bonaparte, and Baron Alfred de Rothschild, he has now elaborated a plan which is as daring as the Jungfrau Railway scheme. The observatory is to be entirely of iron, and is to have a length of eighty-five feet and a breadth of twenty feet. The iron roof is to have the spherical form of an ironclad turret, which the construction will much resemble. The erection of such a building on the highest point of Mont Blanc naturally involves thorough preliminary studies, with which a Zurich engineer experienced in works on high mountains has been charged by M. Eiffel and M. Janssen. In the first place, it is necessary that a firm foundation should be found for the supports of the building on the rock of the mountain. For this purpose a horizontal gallery is to be driven through the ice of the highest glacier until rock is met with, and by means of this gallery the formation and position of the rock buried beneath the ice and snow are to be ascertained and examined. If once this has been accurately determined, a structure is to be designed which will give to the observatory a firm hold by iron pillars founded in the rock. It is not stated how these pillars are to resist the movements of the ice. The question of how the heavy materials are to be moved to the top of the mountain does not appear to give much concern, but, whatever method is adopted, it will certainly prove laborious and very costly. More is thought of the work of surveying, which was to have been commenced this month. Should the surveys prove the practicability of the plan, it is intended to proceed with the erection in September.

Pictet's Fluid.

Carbonic acid, or, as scientific purists will have it, carbonic anhydride, in the solid state, has now been employed for a good many years past in the production of intense cold; but inasmuch as the snow-like substance (partly from its rapid evolution of vapor, partly owing to its flocculent physical condition) is not easy to bring into very close contact with a solid body, it is generally necessary to mix it with some liquid. Thus it is difficult—almost to impossibility—to freeze mercury by merely surrounding it with solid carbonic acid. When, however, a little pure, dry ether is mixed with it, solidification of the metal takes place within a very few minutes. This, in fact, is a very favorite lecture table demonstration, and is accomplished without any trouble whatever. The comparative high boiling point of the latter, nevertheless, detracts largely from the effect, and hence the mixture in question is not so suitable for the production of very low temperatures as it might otherwise be.

It has recently been found by M. Raoul Pictet that when a mixture of the anhydrides of sulphurous and carbonic acids is liquefied by cold and pressure, the fluid thus obtained is more manageable than the carbonic acid-ether mixture just referred to. It produces, by its rapid volatilization, an extremely low temperature, and, for purposes of this kind, is now known as "Pictet's fluid." Aided by a mechanical pressure of four to ten or twelve atmospheres—for most purposes one of about nine is amply sufficient—gaseous nitrous oxide is readily liquefied by the cold resulting from the evaporation of "Pictet's fluid." Then by the use of this liquid nitrous oxide a yet more intense cold is obtained, and, under pressures of from 120 to 200 atmospheres, hydrogen, oxygen, nitrogen, and common air are rendered fluid. Fluid air, the temperature of which is not much above 200° C., is described as a blue liquid, and on letting a little escape, a distinctly blue cloud is formed in the air, disappearing very quickly as the vapor diffuses in the air.

Ground Bone as a Fertilizer.

In a report on experiments made at the New Jersey Station with ground bones as a fertilizer, it is pointed out that ground bone is both a phosphate and a nitrogenous manure, insoluble in water, but when in the soil is decomposed and yields its constituents to the feeding plant in proportion to the fineness. It varies but little in composition and is less liable to adulteration than most fertilizers. They, in fact, are usually pure. Ground bones have a tendency to cake, and to avoid this the manufacturer may use other substances which, while aiding mechanically, reduce the chemical value of the mixture. Raw bone is most usually pure, but the fat it contains renders it less easily decomposed. Bones having served the purpose of the glue maker are low in nitrogen and very high in phosphoric acid. The method now employed of steaming the bones under pressure improves their quality without altering the amount of the plant food ingredients. As the value of ground bones depends upon composition and their fineness, a mechanical as well as chemical analysis is required to determine their value. The farmer must determine by crop tests which grade he should buy—whether, for example, pay a dollar for ten pounds of phosphoric acid in one condition, or for eighteen and a half pounds in another form. Average wood ashes are worth $9 per ton, but the best vary considerably.—*Fruit Growers' Journal.*

A New Disinfectant.

A recent discovery, which is the outcome of the investigations of Dr. H. Oppermann, and which he has also patented, is the application of dolomite to antiseptics. The dolomite, after a special preparation, is mixed with a certain proportion of oxide of iron and iron pyrites, and the mixture is employed in the form of a powder. According to the experiments made at the Hygienic Institute, at Kiel, it seems likely to substantiate its reported efficacy.