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COFFEE AND TEA ADULTERATION.

An enterprising daily paper, anxious to learn something of the extent and nature of that general adulteration of tea and coffee which has so often been alleged, recently caused several hundred samples of these to be gathered from various retail stores throughout the city of New York, and turned the same over to a chemist for analysis. The results as published would indicate that sophistication of these products is so rare as to scarcely deserve mention, and might, as a natural consequence, be looked to to prove that the charges so frequently made may not be sustained.

This particular examination is valuable in its way, but it does not go far enough. It has not by any means proved that tea and coffee do not suffer very generally hereabout from adulteration. It only proves that pure coffee and tea may readily be had, if only one asks for and shows a disposition to pay for them, and perhaps it is not too much to add that all this was generally known before.

Those who collected the samples for the recent test were instructed to ask for pure coffee and pure tea, and were supplied with money to pay for these articles. But let us suppose that they contented themselves with purchasing samples of these articles which were placarded before their eyes, "Pure Java Coffee" and "Pure Tea," at ridiculously low prices. How would these have stood the test?

It is a custom, now become quite general in New York and elsewhere, to give away china and other wares to the purchaser of a certain specified number of pounds of tea or coffee, some stores giving tickets with each pound sold, which tickets, when enough are in hand, entitle the owner to various descriptions of presents. Now, any one who has the time and the inclination to look (and he needn't go very far) may find the brands of teas and coffees which fetch, say, 40 and 80 cents a pound at wholesale marked at 30 and 70 cents respectively, with the promise of an ultimate present thrown in to tempt the buyer. It doesn't require the services of a chemist to discover how this is done. The coffee is adulterated, and the tea blended with those of inferior quality. It would be interesting to know just how much chiccory the purchaser of low price ground coffees gets, and how much roasted hard-tack and rye and peas. Chiccory is generally thought to improve the flavor of coffee, and the average consumer is willing to have his coffee thus "improved" to the extent of, say, 5 per cent; but there is reason to believe that when he pays a very low figure, and gets a share in a set of crockery besides, that 40 per cent of chiccory, at least, is added to his coffee. Even then the per cent of chiccory is not greater than that which the French and Germans are wont to use.

THE CELESTIAL WORLD.

THE PARIS ASTRONOMICAL CONGRESS.

An epoch has occurred in the history of astronomy in the meeting in Paris of the great international congress, called together by the French government. The object of the meeting was to confer on the best methods for obtaining a photographic chart of the heavens. The place of meeting was the Observatory of Paris. The conference continued from the 14th to the 25th of April.

Astronomers of note from all parts of the civilized world were present on the occasion. Among the foreign astronomers were: Struve, of Pulkowa; Christie, of Greenwich; Tacchini, of Rome; Gill, of Cape Town; Weiss, of Vienna; Beuf, of La Plata; Cruls, of Rio de Janeiro; Peters, of Clinton; and many others of equal distinction. The French astronomers were, of course, present to take part in the proceedings.

The French government, the Academy of Sciences, and M. Mouchez, the director of the Paris Observatory, made every possible effort to promote the object of the meeting, and provide for the entertainment of the guests comprising the various nationalities.

M. Flourens, the Minister of Foreign Affairs, made the opening address, welcoming the delegates and summing up the object of the meeting.

M. Mouchez took the initiative, as was his due, for it was mainly through his exertions that the conference was inaugurated. Entire unanimity prevailed during the sessions, which were exclusively devoted to the special purpose for which the congress assembled. The unparalleled success attending the experiments in celestial photography made by the Messrs. Henry, of the Paris Observatory, was the inspiration of the movement, and led to the assembling of the congress. Its main object was to discover the most desirable plan for photographing the entire heavens, and thus form a complete chart of the starlit sky as now seen by the inhabitants of the earth. The principal topics discussed were concerning the best kind of apparatus to be used, the most desirable dimensions for the telescopes, the number of magnitudes of stars to be included in the photographic maps, and the number of observatories to take part in the work.

The principal results are embodied in the following resolutions:

- 1. That the success already attained by astronomical

photography makes it imperative that a chart of the entire heavens shall be prepared by the combined efforts of a number of observatories.

2. That refracting telescopes shall be used for the purpose, having an objective of 13.38 inches and a focal distance of 11.25 feet, like those constructed by the Messrs. Henry and now in use at the observatory in Paris.

3. Stars of the 14th magnitude will constitute the extreme limit of those to be photographed. There will be two series of photographic plates, the one comprising all the stars down to the 14th magnitude, the other including only those as far down as the 11th magnitude. The different magnitudes will be determined by the scale used in France.

4. A uniform formula will be adopted for the preparation of the plates to obtain an equal sensitiveness for all that are used. The measures of the photographic images will be made with an apparatus capable of giving at the same time the co-ordinates in right ascension and declination. Great distances will be measured on a determined scale, and smaller distances, down to 0.039 of an inch, will be calculated by the micrometer of the microscope.

The work of photographing the heavens will be divided among a great number of observatories. It is expected that portions of the work will be undertaken by at least twelve American, nearly as many French, two or three British, and as many Germany observatories, while Russia, Italy, and Austria will not be behind their compeers. The arrangements are by no means perfected. At the close of the congress only two directors of observatories—Cruls, of Rio de Janeiro, and Beuf, of La Plata—had received the necessary instructions from their respective governments to engage in the work. The directors of four other observatories—those of Paris, Algiers, Bordeaux, and Toulouse—had signified their readiness to take part of the burden on their shoulders. The other directors were ready and willing, but are waiting for the permission of their respective governments and the appropriation of the necessary funds.

The stars of the first fourteen magnitudes number more than 40,000,000. The time required to impress stars of different magnitudes upon the photographic plate varies greatly. A star of the first magnitude can be photographed in one two-hundredth of a second. A star of the sixth magnitude, the smallest visible to the naked eye, requires half a second, while an exposure of thirteen minutes is necessary for a star of the fourteenth magnitude.

Some faint idea may thus be formed of the marvelous undertaking which will soon take form in a photographic chart of the entire heavens. When the work is completed, every star now visible to the human eye, and nearly every star revealed in the most powerful telescopes now existing, will hold its fitting place on the imperishable record, which will be a facsimile of the sky, with its 40,000,000 stars as they appear to the observers of the present time. How inestimable is the value of the gift thus made by the astronomy of the present to the astronomy of the future! How carefully it will be scanned, how dearly it will be prized, by the men of science who follow in our steps as the basis for the solution of the general constitution of the sidereal universe, the key that reveals the secret of the changes that take place among the star depths!

A New Apple Pest.

THE APPLE LEAF FLEA BEETLE (Haltica punctipennis, LE CONTE).

As long ago as 1872 I found the larvæ of a little flea beetle known as Haltica punctipennis in Missouri, feeding upon hawthorn. In 1877 I found it again in Colorado, but the species has never been considered injurious until the present year. This spring, however, it has appeared in great numbers in the vicinity of Dallas, Tex., and of Gainesville, Tex. Mr. J. R. Johnson, of Dallas, writes that they appeared in great numbers about the first week in May, and that within two or three days thereafter they had destroyed his entire lot of apple and pear grafts. They then removed to his one and two year old apple trees. Mr. Johnson had never been troubled with them before, although he remembers to have seen them in limited numbers in 1883 upon his young apples.

The habits and general appearance of this new apple pest are quite similar to those of the grapevine flea beetle (H. chalybea). The larva is rather slender, dark yellow-brown in color, with darker head, and prothoracic shield, and each segment bears four transverse dorsal warts. The legs are black, and project out at the sides of the thorax.

The adult beetle is shining green rather than steel-blue, and is distinguished from the grapevine flea beetle by its smaller size and by the numerous minute impressed dots on its thorax and wing covers.

This insect, although exciting considerable alarm, will easily be subdued by arsenical poisons, the use of which is well understood in Texas. Mr. Johnson has already applied Paris green in its dry form with good results.—Prof. C. V. Riley.