SCIENCE.

FRIDAY, MARCH 21, 1884.

COMMENT AND CRITICISM.

THE work of the census has again, and for the third time, come to a stop for lack of money. This time the suspension is more serious than ever, the working-force being reduced to the chief clerk, who is also acting superintendent, and an assistant. The public printer has been notified to stop printing the reports; and, unless some extraordinary step is taken, the whole work of the bureau for four months to come will be confined to opening the daily mail. Several volumes of the final report have been published, and have been received with unqualified satisfaction, both here and in Europe; demonstrating, as they do, that this census is the most complete and the best organized ever yet attempted by any nation. The remaining fifteen or twenty volumes are understood to be ready for printing. The causes of delay are two, — the modesty of the superintendent in his requests to Congress for money, and the overcrowded state of the government printing-office. Surely Congress will not refuse to make apropriations of the most liberal dimensions to carry on this work, and to secure the printing of the reports before they have lost part of their interest through age. Let the demand be for a quarter of a million, if necessary; and let the office staff be increased in efficiency by the appointment of a special staff of experienced editors, who shall aid the superintendent in bringing the publication to an early termination.

THE fourth number, for March, of the pilot chart of the North Atlantic Ocean, issued by the Hydrographic office, differs from the earlier sheets of the series, notably in the number of icebergs reported for February south-east of Newfoundland. An aberrant berg appears about three hundred miles west-south-west of Ireland, in latitude 51°, longitude 18° west. In the legend concerning the weather reported for February, we are glad to see the term 'straight-line gale' of the previous charts reduced to the more non-committal 'gale;' but the absence of 'cyclones' is still insisted upon. Whatever be the meaning attached to this word by mariners, its ordinary use to include all large rotary storms, whether from within the tropics or not, is now so general and so proper, that the repeated statement, 'no cyclones are reported' for the winter months of the stormy North Atlantic, surely needs qualification. The intention is, no doubt, to state that no *tropical* cyclones have come up along our coast from the West Indies: if so, it should be more explicitly worded.

The compilation of observations on wrecks and abandoned vessels promises valuable results for the determination of currents. In only four months' records, over sixty examples are given, in many cases identified by name, and in a few cases reported by two or more observers on different dates. When the wrecks are floating almost awash, presenting little surface for the wind to blow upon, they will move only with the surface-drift, and, as noted in sucessive positions, will give excellent data for measuring the direction and velocity of currents. By thus keeping track of their movements, it will be possible to avoid the error of the old-fashioned bottle-experiments, in which only the beginning and end of the course were determinable, and time of passage was unknown. At the end of the year we shall hope to present a *résumé* of the results thus attained.

THE various local sub-committees of the British association at Montreal seem to be pushing the work in their special subjects with an energy which promises much for a successful meeting in August. In the section of economics especially, the committee is taking advantage of the opportunity presented, by bringing

forward papers which will give a comprehensive survey of the various important economical questions which are just now exciting so much discussion with reference to the future growth and prosperity of the colony. Among these, agriculture necessarily occupies a prominent position; but it is gratifying to see that general and technical education is also to receive important consideration.

Our leading article mentions at its close the brief life and sudden death of a society formed for home study for young men, modelled upon the older society, still vigorously flourishing, restricted to young women. Why there need be distinct organizations of that sort for the two sexes, it is a little difficult to see; but it is a little curious to find, that, hard upon the death of the 'Young men's society for home study,' a new organization has sprung up for the same purpose, but without limitation as to sex, bearing the somewhat pompous title of the 'Correspondence university.' It announces forty-one instructors (two of whom are women), resident in eight states of the Union, besides one each in Germany and Scotland. Sixteen of these are assigned to different departments of science, eleven to mathematics, and six to modern languages; so that the scientific leaning of our new 'university' is very marked. We shall look with much interest at the result of this experiment; for the promoters of the enterprise have certainly secured the services of many most excellent teachers, and they aim at a higher grade of instruction than has been attempted by the earlier organizations. A large proportion of the teachers are connected with Cornell university, which may be considered the headquarters. Unfortunately, as far as published, the plan appears to lack that unity and proper co-ordination which would at once command respect and confidence; and its higher grade of charges, though still very small, may prove an obstacle to its popularity.

We are glad to see a change in the wording of the 'indications' issued by the signal-service. Heretofore, variations of pressure have been indicated by 'rising' or 'falling barometer;' although change in the warmth of the air has always properly been mentioned as 'higher' or 'lower temperature,' and not 'thermometer.' Now the wording is made uniform, and observations of the barometer are recorded as implying 'increasing' or 'diminishing pressure.'

The late issue of *Copernicus* (a double number, 33–34) will be received with no little regret by many astronomers, as it contains the unwelcome announcement that this periodical will be discontinued after the publication of No. 36. We understand that this action on the part of the editors is due chiefly to the insufficient list of subscribers; and it is much to be regretted, as *Copernicus* is the only astronomical magazine, printed in quarto form, in which excellence of typography and general attractiveness in appearance seem to be thought desirable. Its style has been rather that of book than of magazine printing, and its papers on mathematical astronomy have had as fine a setting as the average article in the purely mathematical quartos.

The periodical began in January, 1881, under the editorship and management of Dr. Ralph Copeland, astronomer to the Earl of Crawford and Balcarres, and Dr. J. L. E. Dreyer, then of the Royal observatory, Dublin, and now director of the observatory at Armagh. The first six numbers were issued under the name *Urania*, for which *Copernicus* was then substituted, the editors having become aware of the previous existence of an astrological journal called *Urania*. Its many pages, devoted to the reviews of current astronomical literature, have formed a very valuable feature; and arrangements were, from the beginning, concluded with the Earl of Crawford and Balcarres whereby all the subscribers to this journal have received at the earliest moment the 'DunEcht circulars,' forwarded directly from Aberdeen. The new magazine has fairly established its claim to be 'an international journal of astronomy;' the chief astronomers abroad who have contributed to its support being the Earl

of Rosse, the Earl of Crawford and Balcarres, Drs. Wagner, Schjellerup, Ball, and Backlund, and Professors Klinkerfues and Bredicton. American astronomers have also done their full share; papers having been contributed by Dr. Peters, and Professors Pickering, Holden, Todd, Wright, and Stone. We express the hope that *Copernicus*, as a high-class journal for the publication of astronomical papers, may at some future time be re-issued under the same management as before.

LETTERS TO THE EDITOR.

*** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

'Illusive memory.'

THE subject presented in *Science* for March 7 (p. 274) under the above heading, by Mr. Osborn, if an obscure, is certainly an interesting problem in psychology. Its scientific treatment, however, will probably require a much wider range of investigation than that proposed by the writer. He has indicated 'two widely different theories' in explanation of the mental phenomenon: a third hypothesis appears to have escaped him.

Plato, as is well known, recognized this peculiar condition of the mind, and made use of it as an evidence of pre-existence, — a fancy embodied in the familiar lines of the poet: —

> "Our birth is but a sleep and a forgetting:
> The soul that rises with us, our life's Star,
> Hath had elsewhere its setting,
> And cometh from afar:
> Not in entire forgetfulness,
> And not in utter nakedness,
> But trailing clouds of glory, do we come."

If, now, we substitute for Plato's conception of an individual personal experience the more prosaic one of ancestral experience, we shall have, in brief, the third hypothesis, — the partial continuity of consciousness through genetic descent, instead of through metempsychosis or transmigration. From this aspect, the problem of the irreferable impressions of vague reminiscence would not fall under the class of *erinnerungs-täuschung*, or '*illusive memory*,' at all.

The modern reference of all the varied 'instincts' of animal life to the simple physiological datum of the heredity of a limited experience and memory, would naturally lead us to anticipate some such exhibition in the human race; nay, rather to wonder why we do not find such experiences much more pronounced and abundant. Notwithstanding the enormously greater expansiveness of cerebral action in man than in his lower fellow-creatures, the long-continued or reiterated impressions of a far-reaching ancestry would seem to justify the induction that 'intuitions' (so precious to the metaphysician) should be manifested in particular channels in a much stronger and more decisive form than we actually observe. Here, then, is a negative psychologic problem calling for explanation, and well deserving a careful comparative investigation.

To satisfactorily test this 'third hypothesis' is undoubtedly an extremely difficult undertaking, both by reason of the usual 'haziness' of these Platonic reminiscences, and of the rare opportunities of authentic verification of special parental or aval recollections. The question, however, is one of such biologic importance, that it merits an even laborious research; and, if in only one or two instances a clear evidence of such transmitted memory in man could be established, it would justify the inference that many similar cases are referable to the same principle.

The inquiry should include the antecedent experiences of grand-parents as well as of parents: since there is reason to believe that aval heredity is *relatively* more frequent than direct parental heredity; or, in other words, that there is a tendency to 'alternate generation' running through the animal kingdom.

Washington, March 13. W. B. T.

'The oldest living type of Vertebrata,' Chlamydoselachus.

In *Science*, No. 57, p. 275, my friend, Professor Cope, falls into the error of placing among the species of the genus Diplodus Ag. (re-named Didymodus by Cope) the 'peculiar selachian' recently discovered, and described by me in these columns. With the specimen before him, he would be the last man to make such a mistake. And no doubt he will thank you for giving the space necessary to a correction.

The most important of the characters on which the genus Diplodus was founded by Agassiz (1843, Poissons fossiles, iii., pp. 204, 209), that by which it is separated from Hybodus, Sphenonchus, and Cladodus, is a greater development of the secondary cones of the teeth, while the median cone remains rudimentary or comparatively undeveloped. This is not the case with Chlamydoselachus: it is not the secondary, but the median, cone in which is found the greatest development; agreeing in this respect with Agassiz' genera Hybodus, Sphenonchus, and Cladodus, in which "le cône médian l'emporte sensiblement sur les cônes latéraux, et se développe en quelque sorte à leur détriment." In the teeth of Chlamydoselachus, the cone at either side of the median is a mere rudiment. If the new selachian was to have been placed in either of the fossil genera mentioned, it should have been Cladodus. Mr. Cope says of Didymodus, 'The species possess two, three, or four denticles.' Of course, a second thought will increase the number so as to include Chlamydoselachus, which has more than four.

The propriety of placing living species in fossil genera of so long ago on account of resemblances in a single organ, such as a tooth only of a selachian, is to be questioned. The teeth do not give satisfactory clews to structure and shape of other organs, or of the body itself, in the majority of the sharks and skates. This is evident enough on comparison of the teeth of Carcharias, Alopias, Zygaena, Squatina, Torpedo, Scyllium, Raja, Triakis, Disceus, Mustelus, Trygon, Pristis, Potamotrygon, Rhinobatus, Dicerobatus, and others. It would be hardly worth the while to separate recent genera by the number and position of fins, or shape of body, and then make them equal to the same fossil genus on account of some similarity in teeth. Material in my possession will enable me, as soon as the necessary drawings can be made, to prove conclusively that Chlamydoselachus does not belong to the genus Didymodus of Cope (= Diplodus Ag.), and that it was hardly safe to announce Didymodus as the 'oldest living type of Vertebrata' until more was known about Chlamydoselachus. S. GARMAN.

Cambridge, March 17.