

following headings:—Agriculture and Husbandry, Anthropology and Ethnology, Botany, Chemistry, Geology, Mineralogy, and Palæontology, Zoology and Biology, Physiology, Anatomy, and Medicine, with the subsection of Dentistry, Mathematics and Physics, Astronomy, and Engineering. The catalogue is strong in books published in Germany, and therefore not easily procurable at the present time. An interesting item offered for sale is a collection of about eight hundred pamphlets dealing mainly with genetics and variation, formed by the late J. R. Gregory, of the University of Cambridge. Messrs. Heffer have also for disposal a complete set of the Reports of the Scientific Results of the *Challenger* Expedition, with letters by Sir C. Wyville Thomson, Sir John Murray, and Sir George S. Nares inserted.

OUR ASTRONOMICAL COLUMN.

COMING CONJUNCTIONS.—The planets Venus and Jupiter, which are now conspicuous objects in the evening sky, will be in conjunction in right ascension on May 25, Venus being $2^{\circ} 7'$ N. in declination. The moon, which will be new an hour after noon on May 29, will be in conjunction with Jupiter in the early morning of June 1, and with Venus in the evening of the same day, and the picture presented by the young moon and the two planets in the evenings of May 31 and June 1 may be of interest, though the conjunctions are not close. Venus will make close conjunction with Saturn on July 2, when the distance between the two objects will be only $10'$. The appearance of these three planets so near together in the evening sky is noteworthy.

MARS.—A memoir on Mars from the pen of Mr. Harold Thomson, president of the British Astronomical Association, appears in *Scientia* for May. Mr. Thomson narrates concisely the facts known about the planet from observation, and takes the very proper view that it is not specially the function of the astronomer to indulge in speculations as to the possibility of inhabitants of other worlds based on such facts, but only to collect them. Nevertheless, he makes the point that the changes in the form of the dark markings and in their positions may represent changes on the surface of the planet which have analogies on our earth in the destruction of large forest areas, the ploughing up of vast tracts of land, or the changes caused by the operations of husbandry, and this may supply arguments to those who assert the existence of intelligent beings on Mars of as great weight as those furnished by the canals. The author gives no definitive opinion of his own on the question, but suggests that further observation may lead to substantial increase in our knowledge of the physical conditions of the planet.

AVIATION AND WEATHER.

ATLANTIC flying is steadily increasing in interest with the delay occasioned by the weather and by the increase in the number of competitors with the lapse of time. If any season of the year is favourable to a westerly flight it is the spring, and certainly just at present the prevailing east winds over the Atlantic near the surface of the sea would, in a measure, encourage the aspirants for a flight from the British Isles westwards. St. John's, Newfoundland, is evidently a badly chosen spot for a start on an easterly flight, if only for the reason that should a start be made the prevailing fogs would not allow of a safe return if for any reason a return is necessary. In a westerly flight from the European side certain localities must

be avoided for landing, due to the well-known prevalence of fog. The shoal-water in the neighbourhood of St. John's is evidently an important factor in the formation of fog, and with easterly winds fogs seem to be much intensified. The United States naval seaplanes have accomplished their first stages as far as Newfoundland satisfactorily, but the next stage to the Azores is a more severe test. Adverse winds would materially hamper their flight, and at present it scarcely seems that contrary winds can be avoided on a part at least of the route to be chosen. American warships are stationed between Newfoundland and the Azores at such distances apart as must afford considerable confidence to those engaged in the flight. The brightness of the moon just now will be an additional advantage if winds and weather promise to be favourable.

Flight from England to Australia is now becoming as enticing to pilots of aircraft as the Atlantic flight. The *Times* of May 12 announces that "the preliminary conditions of the Australian Government's offer of a 10,000l. prize for the first Australian airman to fly from Great Britain to the Commonwealth have been arranged at a conference attended by representatives of Mr. Andrew Fisher, High Commissioner for Australia in London, the Royal Aero Club, and the Air Ministry." It is stipulated that the prize must be won before the close of 1920. The distance must be completed in 720 hours, and a disabled machine must not be towed more than 100 miles, and not more than twenty miles at one time. The probable route will include, amongst other places, Paris, Rome, Bagdad, Calcutta, Singapore, Batavia, and Port Darwin. There is plenty of work for meteorologists at present to decide the most favourable passage for aeronauts engaged in commercial aircraft traffic, and this second prize for a long route will require much thought and calculation. A good deal is known with regard to the winds near the earth's surface, but for a large portion of the route little has been ascertained as to the direction and velocity of the upper air.

Flying and the weather at sea by wireless reports from ships is dealt with by the Admiralty in a "Notice to Mariners" (No. 880, 1919). Arrangements are being made for the regular supply of information three times a day, at 1 a.m., 7 a.m., and 1 p.m., Greenwich mean time, when vessels are within a certain distance of stations being established in the north-eastern Atlantic. It is proposed to collect weather information by wireless from ships at sea all over the world, and it is hoped that the information received will be of use for the requirements of aircraft and admit of ships being supplied with trustworthy weather reports and forecasts wherever they may be. Much of the success of the undertaking depends on the rapidity of passing such data by wireless from the ship to the coast station and on to the Weather Office. Ships not supplying data are asked to exercise care not to interfere with the transmission of the wireless messages to the shore. At present the scheme is undertaken by the British Meteorological Office, and revision of the scheme will necessarily be made from time to time. It is proposed that ships communicating the weather information should send out a warning which is designed to notify ships within range that a report is about to be made, and that they should therefore avoid interfering. A wireless weather bulletin issued to ships may take the form of an official weather report giving the existing weather conditions, or an official weather forecast giving the probable future weather conditions. The "Notice to Mariners" will necessarily be studied by all vessels interested in the weather advance proposed.