

limb of Venus on July 22, 1972, present new information not only about the physical parameters of the atmosphere and its general chemical composition, studied by previous probes, but also about the illumination of the planet and the nature of the surface.

According to the official press statement (*Pravda*, September 10, 1972) the chief purpose of Venus-8 was the investigation of illumination. The photometer carried by the descent stage, which was sensitive to wide variations of luminosity, gave readings right down to the surface. A detailed quantitative analysis of the data is now being carried out, in order to determine the optical characteristics of the atmosphere. Preliminary estimates, however, indicate considerable atmospheric attenuation of the sunlight but "a definite fraction" does penetrate to the surface and on the surface "there exist considerable differences in illumination" between the day and night sides.

The day and night surface readings for pressure and temperature obtained for Venus-8 ($470 \pm 8^\circ \text{C}$, 90 ± 1.5 atmospheres) are very close to the readings of Venus-7 ($475 \pm 20^\circ \text{C}$, 90 ± 15 atmospheres) which soft-landed on the dark side on December 15, 1970, confirming the theoretical model of the atmosphere postulated on the basis of radio astronomy observation of the planet.

A gamma ray spectrometer, which had been calibrated against samples of Earth rock, revealed that the surface contained 4% potassium, 0.002% uranium and 0.00065% thorium, similar to terrestrial granite. Although these results give an insight of the geology of Venus, they are only of local significance, and no definite conclusions can be drawn about the evolution of the planet until further probes have investigated other regions of its surface.

In addition to experiments carried out on the surface and during descent, Venus-8 also provided more data on the upper atmosphere. Variations in the overload of the descent stage during aerodynamic braking were measured and because these variations depend on the atmospheric density they were used to estimate the density of the atmosphere above 35 km. In addition to physical measurements, Venus-8 supplemented the chemical data obtained from previous probes by studying the ammonia content of the cloud layers by a special reagent which changes from yellow to blue when it reacts with free ammonia. The colour change was recorded by photoresistances. At 46 km and 33 km, 0.01%–0.1% of ammonia was detected.

During the descent, the wind velocity was estimated by measuring lateral velocity of the capsule. Above 45 km, winds of 50 m s^{-1} were observed, decreasing to less than 2 m s^{-1} below 10–12 km. These data indicate a zonal

(latitude) wind directed from the terminator towards the day side—that is, the wind blows in the direction of the rotation of the planet.

AUSTRALIA

Committee Assembled

THE government of Australia has at last settled the composition of the Advisory Committee on Science and Technology which is intended to give advice on the planning of a strategy for Australian research and development. The government's intention to have such a committee was first announced last April, and in the past few weeks the Prime Minister has been under pressure to say when the committee would be able to begin its work. One of the questions raised by the formation of the committee is the extent to which it will echo in its recommendations recent expressions of discontent with the Commonwealth Scientific and Industrial Research Organization, still the dominating force in Australian research and development. Industrialists have taken to complaining that the work of the CSIRO is not closely enough geared to the needs of industry (see *Nature*, **238**, 425; 1972).

Chess Champion

A GREAT deal has been written in recent weeks about the progress of the Spassky–Fischer match both on and off the board. It is rare indeed that a chess match should arouse such a widespread following, but the quality of the games played (although always interesting) was probably lower than most people had hoped for. The drawn Botvinnik–Smyslov match of 1954 probably still has the best claim to be the championship match containing the highest standards of play since the Second World War.

Fischer's play was, nevertheless, entirely worthy of a world champion, and this was perhaps surprising in view of tensions that surrounded the start of the match. Spassky's play, on the other hand, lacked the authority and confidence exhibited in his earlier years (although he is still only 35). It seemed as though a form of morose fatalism had entered into his mental attitude towards the match and that this had adversely affected his play.

Yet at the start of the match a runaway Fischer victory seemed a fairly remote possibility. Fischer's incomprehensible error in the first game of allowing a bishop to be trapped, and his voluntary default in the second game, left Spassky with a two point lead. The initial phase of the match, however, started with the very next game

Among university scientists it is also held that some of the basic research supported by the CSIRO, in fields such as radio astronomy for example, would be better placed in universities. The eleven seats on the committee turn out to be shared by industrialists and academics in the ratio 6 to 5, which implies that some important arguments may already have been decided. The chairman is Mr Colin Lyme, director of the Australian Industrial Corporation and previously with Broken Hill Proprietary Company Limited. The university members of the committee are Professor A. J. Birch (Australian National University), Sir Rutherford Robertson (Australian National University and president of the Australian Academy of Science), Professor Colin Donald (Adelaide), Professor Robert Street (Monash) and Dr Bruce R. Williams (Vice-Chancellor, Sydney). The industrial members of the committee are Mr Peter Baillieu (King Ranch Pastoral Proprietary Company Limited), Mr Alan W. Hamper (ICI Australia Limited), Mr B. T. Loton (Broken Hill Proprietary Limited), Mr Russell T. Madigan (Hansley Holding Company Limited) and Mr John Wilson (Australian Paper Manufacturers Limited).

when Fischer displayed alarmingly good form and Spassky began to show the defensive approach that was to continue for many games to come. Fischer scored his first ever win against Spassky in this game, and he was to win no fewer than six further encounters with him before the match finally ended.

Spassky was generally poorly prepared for the openings that actually occurred in the match, and it was in this part of the game that Fischer seemed to have a noticeable psychological advantage. Spassky was reasonably happy when Fischer played an opening variation that he had frequently used in previous games (for example, the Sicilians of 4th and 11th games or the Ruy Lopez of the 16th game), but seemed ill at ease when confronted by a surprise opening choice by Fischer (for example, the Queen's Gambit of the 6th game or the Alekhine's Defence of the 13th game). Spassky tended to settle down only during the latter part of the match, but by this time Fischer could well afford to concede a series of draws.

It may be part of Fischer's technique to try to disturb his opponent's composure (either consciously or unconsciously) by somewhat dubious demands and complaints, but he probably does not really need to do so because he has shown himself to be the most gifted chess player in the world.—J. P.