PARAPHYSICA

Systematic experiments to establish the spatial distribution of physiologically effective stimuli of unidentified nature

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Summary. Many persons react to a kind of external agent by unconscious muscular reactions if they move across a place where this agent is supposed to be particularly active. Such places normally coincide with geological discontinuities, such as water veins, mineral ores. Practitioners of this art of detecting claim that the reaction patterns on different levels above ground are identical as vertical projections of the source pattern, this without perceptible attenuation. In some cases the supposed source was believed to have been found up to several hundred meters below ground surface. The statement of perpendicular propagation, which is the subject of this paper, is of prime importance for an approach towards understanding and all kinds of prospecting.

As has been reviewed in many books[2-10], it is known since ancient times that certain persons possess a sensorium which leads to unconscious muscular reactions if they pass certain locations. Some trained 'sensitives' claim that such stimuli originate from underground water veins. Others attribute them to geological discontinuities[6,8,9]. Actually both are to be found in conjunction with each other.

The present investigation aims to check systematically one of the claims most frequently put forward, namely that of the perpendicular structure of the reaction field.

Several communications in local newspapers and popular magazines, particularly an article in the Roche-Zeitung 1972/4, have revealed that the multinational pharmaceutical company Hoffmann-La Roche, headquartered in Basle, has used a particular sensitivity of 2 of their staff members for locating underground water to discover water supplies for projected chemical plants in many parts of the world.

The investigations reported in this paper were performed with the 2 non-professional sensitives TR and RU from the above-mentioned company, herein called operators. The experiments were made in long superimposed corridors of a multistory building in Basle, in which a typical reaction zone had been located some years ago. This zone was apparently correlated with a water vein into which a well had been sunk which produced large quantities of water.

Facilities. As an indicator for their unconscious muscular reactions, the 2 operators used metallic rods of aluminum or stainless steel bent into a hoop-like loop as illustrated by figure 1. The tips of the rod were axially fixed in a pair of rotating handles. A potentiometer was mechanically connected to one handle to produce an electrical signal by the angular change of the position of the rod tip with respect to the handle. The signal was transmitted by a small coax lead. The unwound length of this lead was used to generate another signal proportional to the position of the operator along the corridor. Both signals were used to trace the response curves by an x-z-recorder.

Many tests have established that the rod is simply an indicator. It is a spring-like device in which elastic energy is stored that makes possible a sudden reaction. The size, form and material of the rod are of no, or at least of minimal, importance. They merely reflect the operator's preference. Operators generally choose shape and elastomechanical qualities of the rod according to specific preferences and to the constant training they get with it. If experimentation requires an instrument the operator is not familiar with, even if it looks similar, sufficient training is required before any significative work is possible. Many types of tests revealed a remarkable insensitivity to ex-

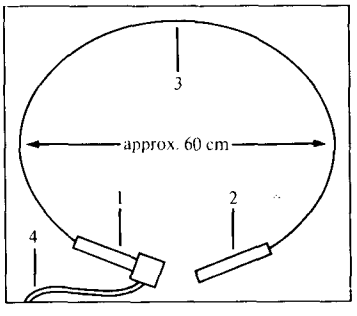

Fig. 1. Rod used by TR and RU. *1* rotating handle with potentiometer for generating electrical y-signals; *2* rotating handle made from PVC with ball bearings; *3* stainless steel tube ∅ 3/2 mm; *4* coax lead.

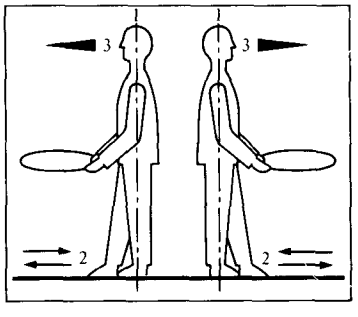

Fig. 2. Positioning of reactions. *1* vertical body centre line; *2* directions of moving; *3* direction operator is facing.

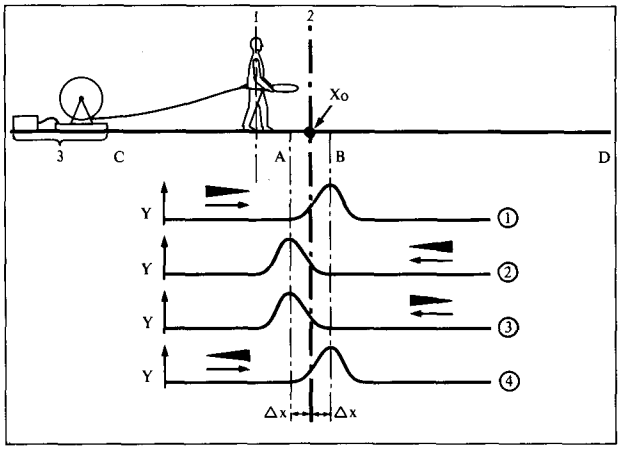

Fig. 3. Reaction pattern for different modes of crossing a narrow source at x_0. *1* vertical body centre line; *2* vertical centre line of source; *3* x-signal producing system and x-y-recorder; ①-④ typical recordings; *Δ*x signal shift.

Operator	Date	Floor	Width of zone	Deviation direction-E	Reaction type
CO	1976, Jan. 27/28	Top	2.00±0.05 m	6%±1	TR
		Base	1.95±0.05 m	0	
AE	1976, Feb. 2	Top	1.85±0.15 m	10%±3	RU
		Base	1.60±0.10 m	0	
CO	1976, Feb. 17	Top	2.25±0.10 m	10.5%±2	TR
		Base	2.00±0.10 m	0	

traneous conditions such as footwear, gloves, clothing, meteorological conditions, etc.

Both operators, TR and RU held the ends of the rod in their hands, the thumbs facing each other about 25 cm apart at hip level. The loop was held in a roughly horizontal plane, elastically constrained near instability with a tendency to flip. The reactions of both operators consisted of an increase of the inclination angle of the plane defined by the rod loop. Figure 2 defines the positioning of the reactions by the vertical body centre line 1 of the operator; the arrows 2 indicate the direction of walk, and wedge 3 the direction the operator is facing.

Preliminary experiments, considerations and precautions. Figure 3 shows the typical reaction pattern from a narrow source, a buried water pipe at x_0 within the zone AB when the operator is walking forward (⇒, ⇐) and backward (⇒, ⇐) in both directions. When moving from C to D, forward or backward, the reaction occurs at or near B, when moving from D to C, it occurs at or near A; A and B having the distance Δx from the source location x_0. The curves ① and ④, ② and ③ show that it is the operator's *body* and *not* the *rod* which accounts for the reaction; the

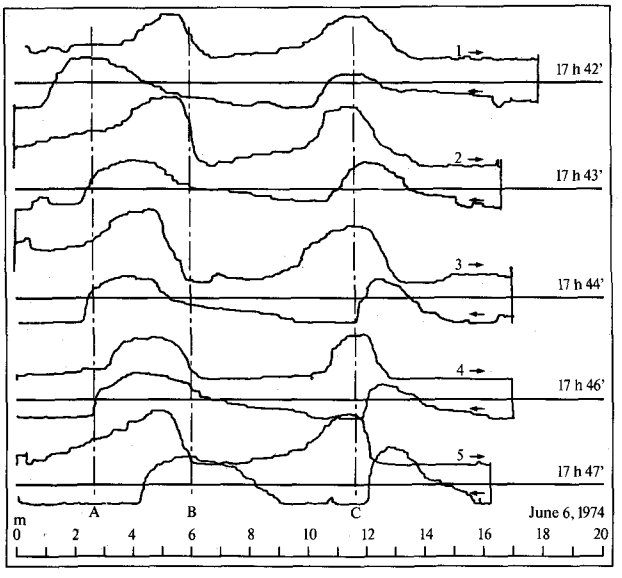

Fig. 4. Reaction diagram 12; test 5; floor 5; TR without blinkers. June 6, 1974.

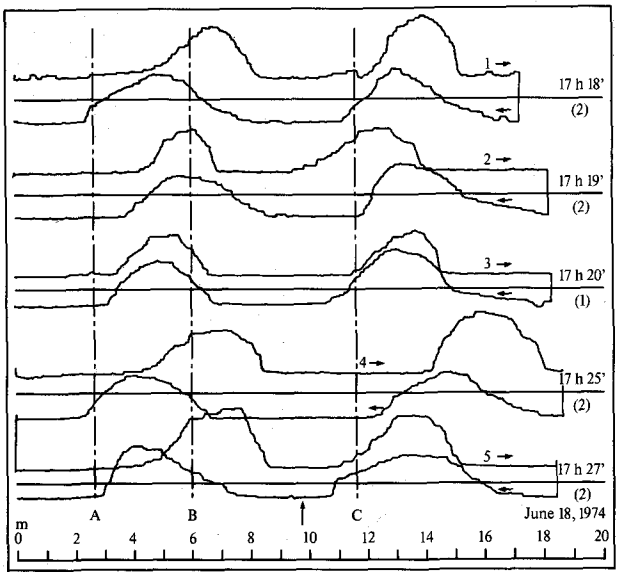

Fig. 5. Reaction diagram 14; test 7; floor 2; TR with blinkers. June 18, 1974.
(1) normal path length; (2) reduced path length; ↟ stop for 10 sec.

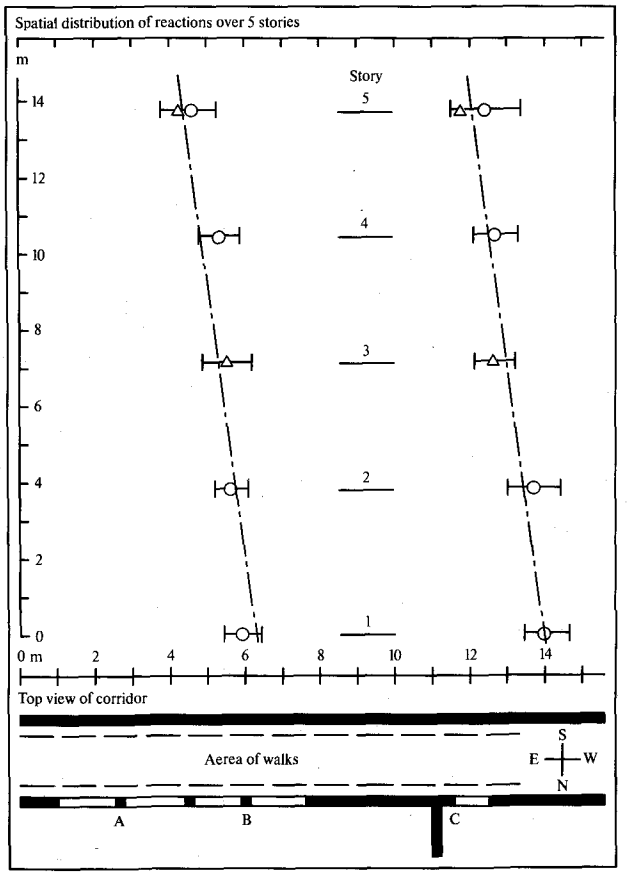

Fig. 6. Spatial distribution over 5 stories of TR's reactions as observed in the long corridors seen from north and top view of the corridor with typical structure elements A, B, C (windows, doors) of all 5 corridors. Δ test June 6, 1974; ○ test June 18, 1974.

positions of the body's vertical center line are symmetrically distributed on each side of the signal source location x_0. The apparent retardation Δx of the reaction is related to the sensitivity of the operator. The sensitivity generally varies considerably during a test series, at the beginning usually starting with apparent retardation which decreases to zero and develops towards apparent 'anticipation', as will be demonstrated in a later paper.

On account of the major role of the motor nervous system in controlling motor muscles, one might suspect that the results could be strongly influenced by the operator's imagination which predominantly commands the motor system. Therefore, the experiments have to be designed such that the chance for imagination-induced reactions is as low as possible. Experiments have shown that, in any given test, the operator must know what task he has to perform, e.g. the localization of a locally fixed, hidden source. The operator must trust the experimenter who will not try to mislead the operator by putting 2 or no sources in position instead of 1. Since the response is apparently of physiological nature, its quality might deteriorate in the course of an experiment. Therefore, if the operator has to perform too many experiments in short intervals, he might feel a sort of tiredness, which reflects in aberrant responses. During the frequently repeated trials, familiarity with the topography of the corridor might have induced imaginary reactions. To avoid optical recognition of the operator's location, both operators initially wore either tube-like 'blinkers', allowing them to see merely the end of the long corridor, along which they were walking, but not its sides or the floor, or blindfolds. As no difference could be observed between the results with and without blindfolds or blinkers, these were omitted. The unexpected final result (figure 6) proved that the operators did not response to the topography of their surroundings. Another most important point is to choose operators who work without any personal interest in the outcome. In the present case, this could have been the wish to prove the generally claimed perpendicularity of the reaction field. The operators TR and RU largely satisfied this condition by having no theoretical preconcepts.

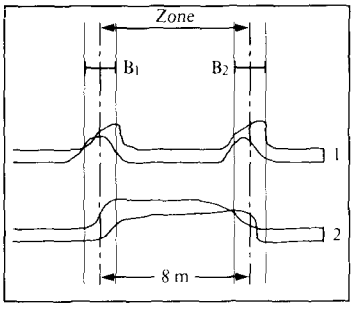

Fig. 7. Comparison between typical response curves *1* and *2* obtained from the operators TR and RU respectively when crossing the same 8-m wide reaction zone; B, B′ are the widths of the reaction bands.

The experiment. Figure 4 and figure 5 show 2 typical reaction graphs obtained from operator TR working with blinkers. The maximum signal amplitude corresponds to an elevation angle of the hoop-like rod of about 70° from the horizontal. 1 division of the abscissa represents 1.0 m of length of corridor. A, B, C are typical reference lines of the building represented by windows and doors that could have served as orientation aids. Figure 6 summarizes the results obtained by operator TR. The upper part of the figure shows the spatial distribution of the reaction field, the lower part gives the corresponding top view of the corridors. a) On each floor 2 reaction zones, here called bands, were recorded, the widths of which are about 2 m. These bands are separated by a distance of 8.0±0.8 m on all 5 floors. This distance will be called zone. b) A significant deviation from the vertical of 2 m eastwards is observed from the ground floor to the top floor (13.6 m), corresponding to 15%.

The mean values were calculated by estimating the maximum reaction points from all walks in one direction, then from all walks in the opposite direction. The average of both means is given with the deviations of the means squared added. There is hardly any difference to be seen between the reaction angle amplitudes from the 2nd (figure 5) and the 5th floor (figure 4), inspite of 3 heavy reinforced concrete floors separating the different levels, whereas smaller amplitudes had been observed in other

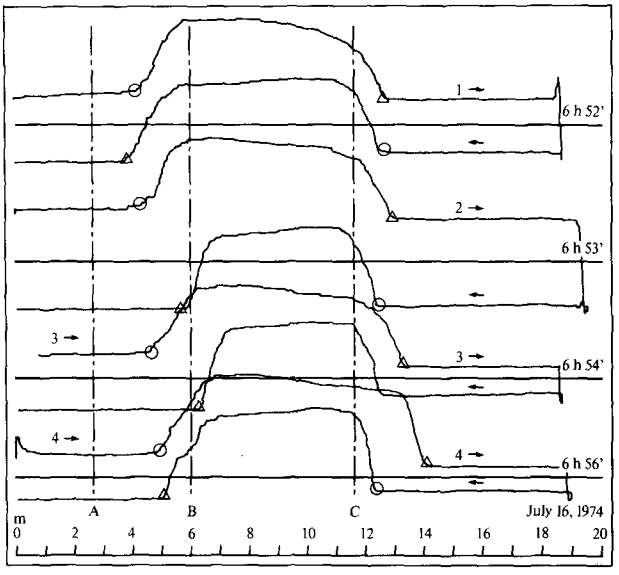

Fig. 8. Reaction diagram 27; test 14; floor 5; RU with blinkers; July 16, 1974; A, B, C see figure 5; ○, △, starting and end points respectively.

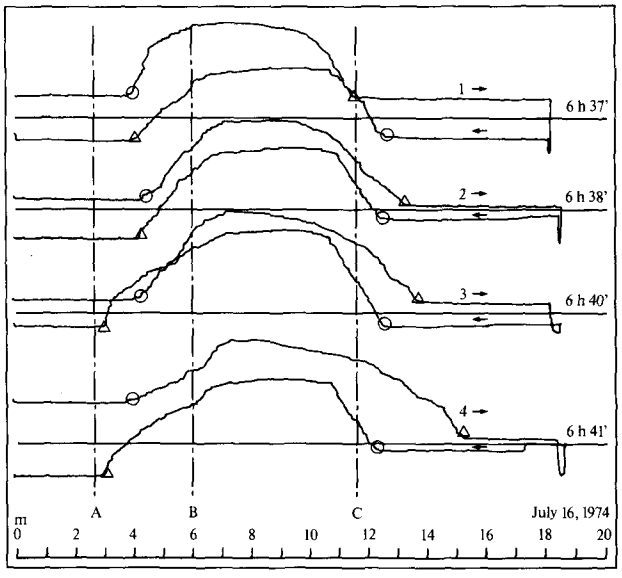

Fig. 9. Reaction diagram 26; test 13; floor 4; RU with blinkers; July 16, 1974; ○, △, starting and end points respectively.

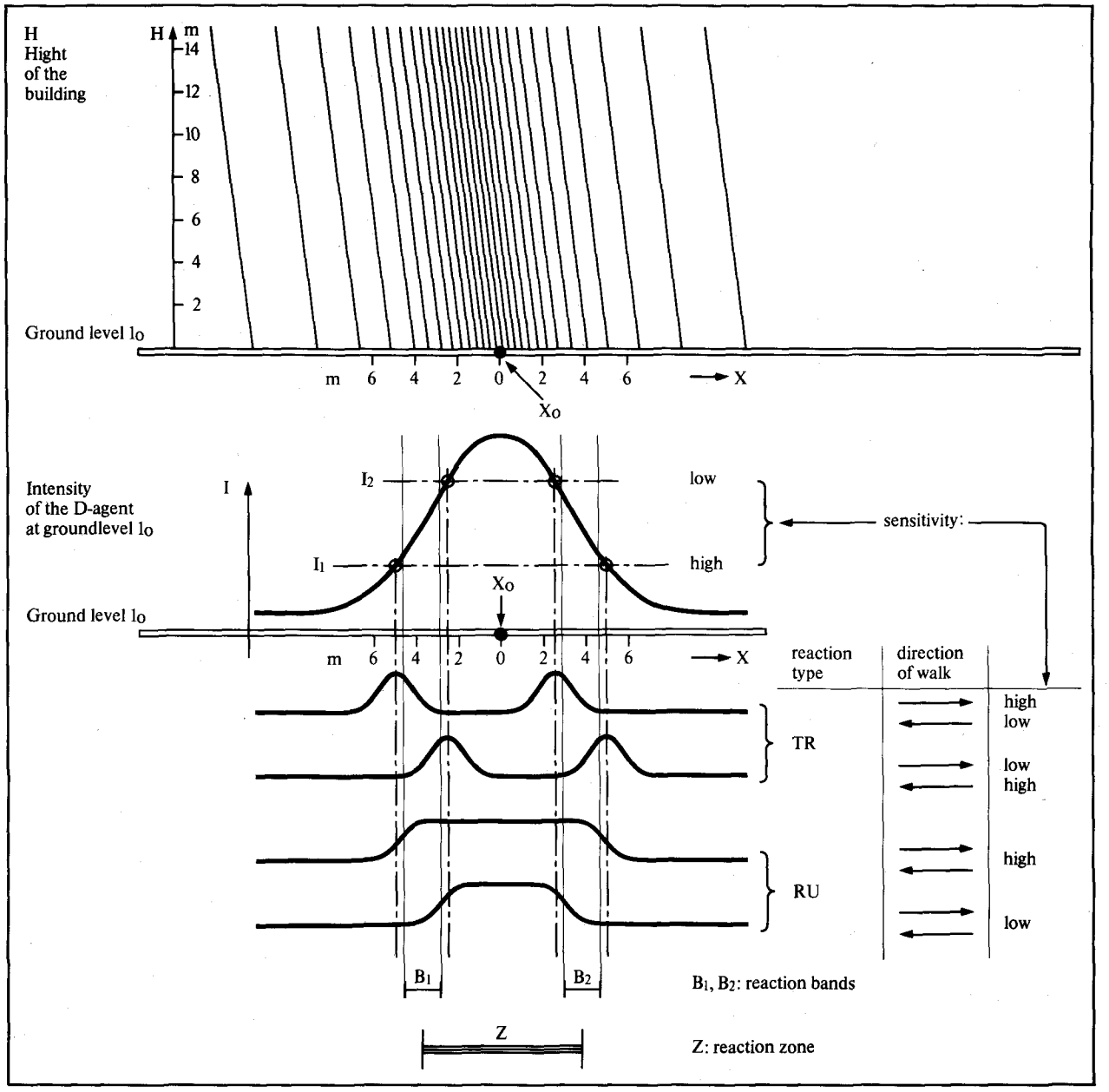

Fig. 10. Reaction types and influence of sensitivity of the operator on the signal shape (RU) and the signal position (TR); hypothetical spatial distribution of the D-agent intensity I, shown for ground level l_0, probably holding up to floor 5 with the indicated shift as observed in Basle.

places. The direction of the reaction zone, as established on the ground floor, was roughly NE-SW, that of the crossings (corridors) E-W.

The operator RU had, after sufficient training with the unfamiliar rod (figure 1), well reproducible reactions, but his response was of a different type; it is compared with that of TR in figure 7. TR seems to respond to the borders of a zone or field, whereas RU merely detects the zone itself. Figure 8 shows the response curves of RU on floor 5; figure 9 those on floor 4. The operators TR and RU never worked or were present simultaneously. Though both of them were informed of each others results, this did not influence their individual reactions in later experiments. RU merely considered the starting points of his reactions as characteristic for the beginning of the reaction zone, and in fact the starting points of his signals did coincide rather perfectly with TR's reaction maxima on floors 4 and 5.

A summary of the results and observations with the operators TR and RU, AE and CO is given by figure 10 together with a hypothetical distribution of the field strength of the 'D-agent' (D for dowsing as the use of the divining rod is called in English), which is the stimulus of an unidentified nature. The spatial distribution of this D-agent leading to the observed biophysical reactions is shown on top by the density of the field lines inclined by 15% seen from north. The horizontal distribution to which the operators responded is shown by the bell-shaped curve for the ground floor of the building l_0. The 2 intensity levels I_1, I_2 correspond to the extreme trigger levels of the biophysical reaction - the operator's sensitivity - for the 2 observed reaction types: TR (CO) 'retarded' or 'anticipated' border signals of equal distance in both walk directions but shifted in function of the sensitivity, RU (AE) long or short zone signals in function of the sensitivity.

A very similar result was obtained 18 months later in a house near Basle with 2 other operators by walking along the 3 floors in E-W-direction, crossing a reaction zone running N-S. The results were:
The structure of each floor being different, orientation with respect to it would have been misleading.- The distance from basement to top floor was 5.0 m.
These experiments should be considered as a contribution to a systematic experimental approach aimed at developing information of the spatial distribution of the biophysical reactions to the unidentified D-agent. Much more has to be done: repetitions in tall buildings and in different azimuths of the zones and different angles of the crossings; similar trials above ground without layers of heavy matter between; underground experiments in mines. Results would also be of considerable practical importance for all kinds of prospecting.

In a future paper we shall present data obtained with an artificial source: The locating of this source, the influence of the operator's sensitivity, the existence of so-called side bands, etc.

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CORRIGENDA

B. Christ, H.J. Jacob and M. Jacob: *On the formation of the myotomes in avian embryos. An experimental and scanning electron microscope study*, Experientia *34*, 514 (1978). Figure 1, the diagram showing the microsurgical procedure, should correctly be turned by 180°.

T. Kondi and D.F. Magee: *Do β adrenergic agents directly stimulate gastrin secretion?*, Experientia *34*, 607 (1978). In the table, gastrin should be given as **pg/ml** and not μg/ml.

P.H.J.Th. Ververgaert and A.J. Verkley: *A view on intramembraneous particles*, Experientia *34*, 454 (1978). On page 455, right column, the first 4 lines should read:
amply described population of intramembrane particles was present which is non-complementary. In analyzing the nature of the particle on the outer fracture face of the outer *E. coli* membrane, we started with the hypothesis that

CONGRESSUS

I. International symposium on 'Synthetic cyclic nucleotides and therapeutic perspectives' (Satellite symposium of the 7th international congress of pharmacology)

Paris, 22 July 1978

For informations write to Dr N.B. Ciao, Laboratoire des Nucléotides cycliques du C.N.R.S., Faculté de Pharmacie, F-92290 Chatenay-Malabry, France.

USA

18th Hanford life sciences symposium

Richland, WA, 16-18 October 1978

Topic of this symposium 'Biological effects of extremely-low-frequency electromagnetic fields'. Further information from the symposium secretary, Mrs Judith A. Rising, Biology Department, 331 Bldg., Battelle-Northwest, Richland, WA 99352/USA.

France

Satellite symposium of the 7th international congress of pharmacology

in Paris, 22 July 1978

Topic of the symposium: Antiinflammatory and antirheumatic drugs. For information contact Prof. J.P. Giroud, Department of Pharmacology, 27, rue du Faubourg Saint-Jacques, C.H.U. Cochin, Paris XIV, France.

Switzerland

ERGOB conference on sugar substitutes

Geneva, 30 October-1 November 1978

The conference on the occasion of 10 years European Research Group for Oral Biology (ERGOB) is organized unter the patronage of WHO, ORCA (European Organization for Caries Research), IADR (International Association for Dental Research) and the Swiss Diabetes Association. Discussion: The reason for substituting or not substituting sugar; absorption, metabolism and safety of sugar substitutes; new sweeteners; sugar substitutes in oral health. Metabolic criteria indicative for cariogenicity; technological possibilities and probleme of substituting sugar in different kinds of sweetened products; benefit/risk assessment and legal aspects.
For further information write to ERGOB, P.O. Box 2126, CH-8028 Zürich, Switzerland.

Italy

International symposium on pituitary microadenomas

Milano, 12-14 October 1978

The program will include invited lectures and open discussion on 'problems in pathogenesis of pituitary microadenomas' and 'problems in treatment of pituitary microacenomas'. Further information by: Secretariat, Clinica Neurochirurgica dell'Università, Ospedale Policlinico, Pad. Beretta, via F. Sforza 35, I-20122 Milano, Italy.