Karger Gazette

NR. 20 27. NOVEMBER 1969

HERAUSGEGEBEN VOM VERLAG S. KARGER AG, BASEL – EDITED BY S. KARGER AG, PUBLISHERS, BASEL
PUBLIÉ PAR LES ÉDITIONS S. KARGER S. A., BÂLE. *SCHWEIZ:* ARNOLD-BÖCKLIN-STR. 25, BASEL (TEL. 390880)
DEUTSCHLAND: ROSASTR. 9, FREIBURG I. BR. (TEL. 31567). *GREAT BRITAIN:* (BOOKS): ACADEMIC PRESS, BERKELEY SQUARE HOUSE, BERKELEY SQUARE, LONDON W1X 6BA (TEL. 01-4936436); (JOURNALS): JOHN WILEY & SONS LTD., BAFFINS LANE, CHICHESTER, SUSSEX (TEL. CHICHESTER 84531)
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N. ERTL

A New Way of Documenting Scientific Data from Medical Publications

An integral part of every scientific paper is the summary. However, very often summaries are written without the necessary care and only give a vague and too general idea of the contents of a paper. Authors, editors and readers are only too well acquainted with the problems involved. For this reason, Dr. Ertl has developed a table system. The table replaces the summary and presents a much more precise and detailed description of the contents of a paper. We should like to put forward for discussion this extremely interesting suggestion and would welcome readers' views on this proposed innovation.

In all research work it is important to keep well informed about scientific publications because the latest results are always of great significance for the scientist in his work.

Nowadays in every specialized field of science a great many publications appear within a short space of time. Since, for example, not only pathologists or clinicians but also physiologists, biochemists, electron microscopists, histochemists, etc. have contributed a large number of papers to the solving of a problem of medical research such as hypertonia, collagenase or malign tumours, it is essential for the reader to look through a great number of papers to pick out those which are only of general interest to him and those which are of more specific interest.

The method previously employed of reading through all new publications is no longer possible in frequented fields of research such as tumour investigation because of the time factor. This is particularly true in the case of the clinician who, in addition to caring for patients and teaching students, also has to undertake medical research.

The summary of a publication should enable the reader to obtain in a compact form a quick survey of the contents, without having to read the article through completely. However, since there have so far been no uniform guides to the composing of summaries for scientific papers, it is not surprising that summaries are presented in so many different ways. Often they do not contain all the necessary details, such as the methods of investigation employed, the breed of test animals, type of tumour, dosage of substance given or the method of evaluating the results, etc., although these are the data which are most interesting to the investigator. For example, sometimes it is simply stated: 'The experiment was carried out on tumour animals' or 'An animal test was carried out'.

These shortcomings in summaries mean that the publications still have to be studied in minute detail and, in fact, the summary does not serve the purpose for which it was written – to give briefly the most important facts from the paper.

There would, therefore, be an urgent necessity to create a short form for presenting the contents of a publication which would give a survey of the most important **data**, without the article having to be studied in detail.

The following proposal offers a way of presenting the scientific information contained in a publication in a lucid short form so that it can be more easily grasped and evaluated by the clinician or research worker, as well as for the documentation of literature.

The Table System

The data from a paper on animal experiments or a clinical paper which are absolutely essential for the complete understanding of a new discovery are well known. They are:

1. Formulation of question or aim of the investigation.
2. Objects investigated and treatment carried out on the investigation object.
3. Findings or outcome of treatment on the investigation object.
4. Methods applied in the treatment and in the investigation.
5. Method of evaluating the results.
6. Particulars of the patients, such as sex, age, possibly anamnesis details (in animal experiments: type of animal, strain, breed, condition, sex, age or weight).
7. Complete results and their consequences.

If they are put together in the form of a table, these details can be seen at a glance and can represent the complete publication. The form and arrangement of this table are shown in Table 1.

The scientific data indicated above must be given in the table in accordance with the following interpretations: the examples given are a) from a paper on animal experiments and b) from a clinical paper.

1. Formulation of question or aim of the investigation

Information should be given here on the aim of the investigation which should contribute to solving the scientific problem under review.

Example A
Investigation of the course and histological character of the involution of the thymus during the growth of transplanted tumours.

Example B
Investigation of the damage or results (such as leukaemia and cancer) of diagnostic X-ray doses in patients suffering from tuberculosis of the lungs.

Table 1. Tabular presentation of the most important data from papers on animal experiments or clinical papers

1. Formulation of question or aim of the investigation.	
2. Objects investigated; treatment carried out on the investigation object. a) b) c) etc.	3. Findings or outcome of treatment on the investigation object. a) b) c) etc.
4. Methods applied in the treatment and in the investigation.	
5. Methods of evaluating the results.	6. Particulars of the patients, such as sex, age, possible anamnesis details. (In animal experiments: type of animal, strain, breed, condition, sex, age or weight).
7. Complete results and their consequences.	

2. Objects investigated; treatment carried out on the investigation object

The objects of the investigation (for example organs, enzymes, cell components, physiological or biochemical processes, situations causing disease, symptoms of disease, therapeutic methods, etc.) are listed here with numerical indications. In the case of treatment (operation, medication, giving a substance, radiation, etc.) this should be indicated next to the relevant objects. If possible, the arrangement should correspond to the test and control groups.

Example A
I. a) Inoculation of Walker carcinoma. 2 × 30 animals.
b) Inoculation of Yoshida sarcoma. 2 × 30 animals.
c) Inoculation of Zajdela hepatoma. 30 animals.
d) Induction of benzpyrene sarcoma in 30 animals.
II. Withdrawal of food from 30 animals.
III. Heterotransplantation in 30 animals.
IV. Solid Walker carcinoma + adrenalectomy in 115 animals.

Example B
a) 135 patients with collapse therapy, for 2–4 years. Total amount of radiation: 21–42 r.
b) 74 patients with collapse therapy, for 4–6 years, in certain cases up to 10 years. Total amount of radiation up to 914 r.

3. Findings or outcome of treatment on the investigation object

In this section the findings or assertions of the author concerning the investigation object should be given. They should be listed in the same sequence as the investigation objects or treatment given in section 2.

BERTHOLD STOKVIS

Psychotherapie

für den praktischen Arzt

Wir möchten «Psychotherapie» grundsätzlich von «Orthopädagogik» und von «Seelsorge» abgrenzen.

Psychotherapie ist ärztliche Beeinflussung von Individuen oder Gruppen von Individuen, aufgefasst als psychophysische Persönlichkeit mit freiem, verantwortlichem Geist, mittels bestimmter Methoden und mittels bestimmter Techniken. *Orthopädagogik* umfasst die individuelle oder gruppenmässige Durchführung von Massnahmen, die der Helfer mittels Erziehung oder Dressatbildung bei in ihrer psychosomatischen Ganzheit Gestörten vornehmen kann. Erziehung richtet sich an das dem Menschen innewohnende Bedürfnis zur Selbstentwicklung, Selbstentfaltung, Selbstverwirklichung und Selbstvervollkommnung; Dressur ist das Einschleifen bedingter Reflexe mit Belohnung und Strafe im Hintergrund. Die Anwendung der Orthopädagogik verlangt primär keine technischen Kenntnisse, hier werden an erster Stelle ἀγάπη und allgemeines Verständnis für den Mitmenschen, warmes Mitfühlen und Entgegenkommen als Eigenschaften des Helfer-Führers vorausgesetzt. *Seelsorge* dagegen richtet sich an den homo spiritualis: Hier ist die Mitarbeit eines geistlichen Helfers unentbehrlich. Es soll in dieser Anleitung bloss von der Psychotherapie die Rede sein.

Psychotherapie ist also eine Art ärztlicher Beeinflussung und soll demgemäss von einem Arzt, u. U. unter Aufsicht eines Arztes durchgeführt werden. Es gibt einen wesentlichen Unterschied zwischen der Somatotherapie (d. h. der Lehre von den physischen und chemischen Heil- und Behandlungsmethoden, die hauptsächlich bei körperlichen Erkrankungen angewandt werden) und der Psychotherapie, der Lehre von den seelischen Behandlungsmethoden, die in erster Linie bei seelischen Leiden herangezogen werden. Man muss dabei stets im Auge behalten, dass der Mensch als körperlich-seelische Einheit betrachtet werden muss und dass der kranke Mensch, der seinem Wesen nach ein Mensch-in-Not ist, unter allen Umständen auch psychotherapeutisch behandelt werden muss. Auch wenn der Arzt dem (körperlich) Kranken nur ein Medikament verabreicht, dann treibt er bereits durch seine beruhigenden Worte gewissermassen Psychotherapie. Man pflegt jedoch erst bei einer methodisch angewandten seelischen Behandlung von Psychotherapie zu sprechen. Somit muss man unter Psychotherapie die seelische, methodisch durchgeführte Beeinflussung der körperlich-seelisch gestörten Persönlichkeit verstehen, mit dem Ziel, Linderung oder Heilung des Leidens zu erlangen.

Das Ziel der Psychotherapie ist, kurz gefasst, dem Menschen-in-Not Hilfe zu leisten. Sie umfasst somit das ganze Gefüge der Massnahmen, die das seelisch und körperlich bedingte Leiden lindern sollen. Es ist heute kaum mehr nötig, die Psychotherapie bei den Ärzten zu empfehlen; an einzelnen Universitäten wurde die Psychotherapie ja bereits als Lehrfach eingesetzt.

Wie gesagt, muss man in der Psychotherapie methodisch vorgehen; die richtige Durchführung der Psychotherapie setzt also die Beherrschung einer gewissen Technik voraus. Ausnahmsweise kann es vorkommen, dass auch der Nicht-Arzt sich diese Technik weitgehend angeeignet hat; im allgemeinen jedoch soll vor der Anwendung von Psychotherapie, besonders von tiefenpsychologischen Arbeitsweisen, durch Laien gewarnt werden. Ebenso unerwünscht, wenn nicht noch weitaus schädlicher, kann eine unverantwortliche populäre Versimplifizierung der Psychotherapie einschliesslich der Tiefenpsychologie sein.

Für die Persönlichkeit des Psychotherapeuten sind gewisse Eigenschaften unerlässlich: Er muss Takt, Geduld, Menschenkenntnis, vor allem jedoch die bereits erwähnte ἀγάπη besitzen, er muss sich von seinen eigenen Schwierigkeiten freimachen können; er muss auch, wenn es nötig ist,

Example A
Ia–d. Large loss of thymus weight with histological involution; small loss of body weight. Beginning of the thymus involution during the growth of solid Walker carcinoma 8–9 days after the tumour inoculation, with the Walker ascites tumour 3–4 days after the tumour inoculation.
II. Small loss of thymus weight without histological involution; large loss of body weight.
III. No thymus involution.
IV. No thymus involution.

Example B
a) No cases of leukaemia known.
One patient died from stomach carcinoma.
b) No cases of leukaemia or cancer known.

4. Methods applied in the treatment and in the investigation

Here are given physiological, biochemical, morphological, clinical, etc. methods of treatment and investigation (with details of time and dosage).

Example A
For the Walker carcinoma and Yoshida sarcoma the tumour inoculation was in solid and ascites form (0.5 ml sc or ip under sterile conditions). The hepatoma was used in the ascites form.
Induction of benzpyrene sarcoma: total 15 mg/animal im.
Withdrawal of food: five days, water ad libitum.
Heterotransplantation: guinea pig skin to rats.
Adrenalectomy: on both sides, usual method of operation.
Determination of body weight and weight of organs.
Histological examination: haematoxylin-eosin staining.

Example B
Collapse therapy: pneumothorax, pneumolysis, pneumoperitoneum.
Exposure of patients to radiation: 50 to 150 thorax radioscopies of ½ to 1 minute of 0.4–3.0 r. 12-36 thorax survey radiograms of 0.005–0.3 r. 6-18 tomograms of 0.02–0.2 r.

5. Method of evaluating the results

Indication of the methods of calculation by which the results were evaluated (calculation of mean value, of significance, etc.).

Example A
Calculation of the mean values and significance of tumour, body and organ weights; examination of the data in the probability grid; calculation of covariance.

Example B
Presentation of diagram in columns giving the number of collapse therapy treatments.

Table IIA
Thymus Involution in Malignant Tumours
N. Ertl and H. Wrba
German Cancer Research Center, Institute for Experimental Pathology, Heidelberg, Germany.
Z. Krebsforsch. *70:* 303–305 (1968).

1. Investigation of the course and histological character of the involution of the thymus during the growth of transplanted tumours.

2. I. a) Inoculation of Walker carcinoma 2 × 30 animals.
b) Inoculation of Yoshida sarcoma 2 × 30 animals.
c) Inoculation of Zajdela hepatoma 30 animals.
d) Induction of benzpyrene sarcoma in 30 animals.
II. Withdrawal of food from 30 animals.
III. Heterotransplantation in 30 animals.
IV. Solid Walker carcinoma + adrenalectomy in 115 animals.

3. Ia–d) Large loss of thymus weight with histological involution; small loss of body weight. Beginning of the thymus involution during the growth of solid Walker carcinoma 8–9 days after the tumour inoculation, with the Walker ascites tumour 3–4 days after the tumour inoculation.
II. Small loss of thymus weight without histological involution: large loss of body weight.
III. No thymus involution.
IV. No thymus involution.

4. For the Walker carcinoma and Yoshida sarcoma the tumour inoculation was in solid and ascites form (0.5 ml sc or ip under sterile conditions). The hepatoma was used in the ascites form.
Induction of benzpyrene sarcoma: total 15 mg/animal im.
Withdrawal of food: five days, water ad libitum.
Heterotransplantation: guinea pig skin to rats.
Adrenalectomy on both sides, usual method of operation.
Determination of body weight and weight of organs.
Histological examination: haematoxylin-eosin staining.

5. Calculation of the mean values and significance of tumour, body and organ weights, examination of the data in the probability grid; calculation of covariance.

6. Sprague Dawley rats ♀; breed: Gassner, Munich; 200 g heavy; standard living conditions.

7. The thymus involution shows no direct connection with the loss of body weight of the animals nor with the size of the tumour during the growth of the tumour. The histological alterations of the thymus tissue show similarity with those following radiation or cortisone treatment. The thymus involution is dependent on the presence of the suprarenal glands.

Table IIB
Damage Caused by X-ray Diagnosis
H. Hermann, K. Kroker, H. Nawrath and O. Wieser
Medical Clinic I Mannheim of the University Heidelberg, Germany.
Beitr. Klin. Tuberk. *139:* 148–150 (1969)

1. Investigation of the damage or results (such as leukaemia and cancer) of diagnostic X-ray doses in patients suffering from tuberculosis of the lungs.

2. a) 135 patients with collapse therapy, for 2–4 years. Total amount of radiation: 21–42 r.
b) 74 patients with collapse therapy, for 4–6 years, in certain cases up to 10 years. Total amount of radiation: up to 914 r.

3. a) No cases of leukaemia known. One patient died from stomach carcinoma.
b) No cases of leukaemia or cancer known.

4. Collapse therapy: pneumothorax, pneumolysis, pneumoperitoneum. Exposure of patients to radiation: 50–150 thorax radioscopies of ½ to 1 minute of 0.4–3.0 r. 12–36 thorax survey radiograms of 0.005–0.3 r. 6–18 tomograms of 0.02–0.2 r.

5. Presentation of diagram in columns giving the number of collapse therapy treatments.

6. 162 ♂ and 108 ♀ patients from 1929–1965 (over a period of 37 years) from the records of the Health Authorities in Mannheim and Ludwigshafen, as well as from a specialist's practice.

7. In a group particularly frequently exposed to X-rays no cases of leukaemia could be found over a period of 37 years. One patient died from stomach carcinoma. The result supports the assumption of a considerable decrease in leukaemia rates after radiation treatment at intervals and does not substantiate the fear of radiation damage as a result of which necessary X-ray examinations are occasionally refused.

6. Particulars of the patients, such as sex, age, possibly anamnesis details (in animal experiments: type of animal, strain, breed, condition, sex, age or weight)

Details are indicated here concerning the patients which were the object of the investigation or from which the investigation objects were taken – sex, age and the most important anamnestic data for the question posed in the publication.

In animal experiments the type of animal, breed, sex, weight or age should be given. Under animal condition should be indicated whether conventional, standard or special living conditions were selected.

Example A
Sprague Dawley rats ♀; breed: Gassner Munich; 200 g heavy; standard living conditions.

Example B
162 ♂ and 108 ♀ patients from 1929–1965 (over a period of 37 years) from the records of the Health Authorities in Mannheim and Ludwigshafen, as well as from a specialist's practice.

7. Complete results and their consequences

Here is stated whether the results provide a positive or negative solution to the problem posed in the publication and what significance can be ascribed to them.

Example A
The thymus involution shows no direct connection with the loss of body weight of the animals nor with the size of the tumour during the growth of the tumour. The histological alterations of the thymus tissue show similarity with those following radiation or cortisone treatment. The thymus involution is dependent on the presence of the suprarenal glands.

Example B
In a group particularly frequently exposed to X-rays no cases of leukaemia could be found over a period of 37 years. One patient died from stomach carcinoma. The result supports the assumption of a considerable decrease in leukaemia rates after radiation treatment at intervals and does not substantiate the fear of radiation damage as a result of which necessary X-ray examinations are occasionally refused.

The author of the publication in question is best informed about the data, such as object of investigation, treatment, findings or outcome of treatment carried out on the investigation objects, etc. It cannot be required of him that he put together in the form of a table the details of his publication. This should be undertaken by the editors. However, the author must supply the necessary data and the best thing would be for him to fill out a relevant questionnaire containing leading questions, if the editors who wish to bring out the scientific paper will provide him with one. The questions put in this way should enable the author to give the required details of his publication shortly and precisely.

In practice, therefore, the author receives a questionnaire containing the following points:
1. Publisher's remarks.
2. Questions 1–7 as in Table I.
3. Instructions for answering the questions.
4. Examples for answering the questions.

The answers given by the author (the scientific data of the publication in question) are then put together in the form of a table by the editors. We consider this tabular compilation necessary because in this way the scientific data are arranged more lucidly and this also enables a more advantageous use of space (Tables IIA and IIB).

The size of the complete table and the individual numbered sections of the table can vary according to the length of the text and should be fitted together in such a way that the available space is used rationally.

For reasons of clarity it is to be recommended that section 2 (objects investigated; treatment carried out on the investigation objects) and section 3 (findings or outcome of the treatment on the investigation object) be placed next to each other because there is a close connection between their groups and subgroups with regard to the contents.

Section 4 is entitled 'Methods applied in the treatment and in the investigation'. This is a departure from the arrangement of traditional publications where the section 'Material and Methods' appeared immediately after the introduction. However, in the table system this is in fact not a case of simply a change of position but of a certain elucidation of the traditional section 'Material and Methods' to meet the demand to shorten the time expended on information concerning scientific results and to simplify the grasping of text data. The necessity for this elucidation lies in the fact that the complex amount of details contained in this section is unsystematic and often even incomplete.

This, together with the immense number and variety of present-day experimental methods, necessitates the rejection in the table system of the general term 'Material and Methods' as such, but the emphasis of its components by placing them in special sections, easily grasped and clearly presented.

The first component 'Objects investigated; treatment carried out on the investigation object' is given as the basis of the whole scientific paper in a precisely defined form in section 2 and section 3 'Findings or outcome of the treatment on the investigation object' is placed parallel. As a result, the urgent question of the reader regarding the relevant investigation object, the treatment and the resultant findings of the author are answered and his general interest is satisfied.

The methods employed in treatment and investigation are given in section 4. The particulars of the patients (in animal experiments of the animals) are given in section 6 and details of the method of eval-

Questionnaire

which is to be filled out by the author

Publisher's remarks:
Journal:
Title of the paper:
Author:

The following questions 1–7 should be answered in order by the author in short sentences.
1. Formulation of question or aim of the investigation.
2. Objects investigated; treatment carried out on the investigation object.
3. Findings or outcome of treatment on the investigation object.
4. Methods applied in the treatment and in the investigation.
5. Method of evaluating the results.
6. Particulars of the patients, such as sex, age, possibly anamnesis details (in animal experiments: type of animal, strain, breed, condition, sex, age or weight).
7. Complete results and their consequences.

Berthold Stokvis

Psychotherapie für den praktischen Arzt

(Fortsetzung)

für den Kranken zum Gegenstand seiner Identifizierung werden können, d. h. er muss einmal eine Vater- und dann wieder eine Mutter-Imago sein können. Der gute Psychotherapeut muss imstande sein, Gefühlsbeziehungen mit seinem Mitmenschen anzuknüpfen und dauerhaft zu gestalten. Dies sind Voraussetzungen, um Übertragungs- und Gegenübertragungsbeziehungen zu beherrschen und produktiv zu gestalten.

Unter Übertragung versteht man den Gefühlszustand des Kranken, in dem eine Übertragung infantiler Gefühlsbeziehungen (vor allem mit Eltern und Erziehern) auf die Persönlichkeit des Arztes stattfindet. Diese Gefühlsbeziehung ist für den Ablauf der Psychotherapie von grösster Bedeutung. Daher muss sie vom Psychotherapeuten in ihren wechselnden Erscheinungsformen von Fall zu Fall eingehend erhellt werden. – Ausser der Übertragung darf aber auch die sogenannte «Gegenübertragung» nie übersehen werden, denn der Arzt «überträgt» ja auch seinerseits die aus seiner eigenen Kindheit herrührenden Gefühlsbeziehungen auf den Kranken. Der Psychotherapeut muss sich also seiner stets wechselnden Gefühlsbeziehungen zu seinem Patienten fortwährend bewusst bleiben, wenn die Psychotherapie nicht scheitern soll. Der Psychotherapeut, der selbst eine Psychoanalyse durchgemacht hat, kann sich seiner eigenen Gegenübertragung leichter bewusst werden. Bei den analytischen Formen der Psychotherapie (s. unten) muss die Gefühlsbeziehung zum Arzt, also die Übertragung, immer wieder genau analysiert und durchgearbeitet werden.

Weiterhin ist die Autorität, die der Arzt durch sein Arztsein nun einmal besitzt, von Bedeutung. Hierdurch kann der Kranke die Worte des Arztes leichter in sich aufnehmen (Introjektion); auch mit einer suggestiven Wirkung ist hierbei zu rechnen. Daher stellen bereits einige beruhigende Worte, die ein Arzt spricht, ebenfalls gewissermassen eine Form suggestiver Therapie dar.

Öfters hat man die Frage erörtert, ob Psychotherapie etwas ist, was gelehrt und gelernt werden kann. Auf diese Frage sind u.a. J. van der Hoop, H. Kogerer, H. Prinzhorn, J. H. Schultz, E. Speer eingegangen. Unserer Meinung nach kann man Psychotherapie lernen, auch wenn die vorhin besprochenen persönlichen Eigenschaften des Helfers Art und Wert der angewandten Psychotherapie stark beeinflussen.

Für ein Gelingen der Psychotherapie ist es notwendig, dass der Kranke seinem Kranksein gegenüber eine adäquate Einstellung und Haltung findet. Es ist die Aufgabe des Therapeuten, diese in Gemeinschaft mit dem Patienten zu klären bzw. mit ihm seinen (bewussten oder unbewussten) Willen, zu gesunden oder krank zu bleiben, zu besprechen.

Wenn eine Psychotherapie ihr Ziel erreichen soll, dann muss der Kranke nicht nur von seinem Symptom befreit werden, sondern es muss ihm auch unmöglich gemacht werden, in neue Krankheitserscheinungen hinüberzugleiten. Erst dann kann man von einer Heilung sprechen. Die Persönlichkeit des Kranken soll also durch die Psychotherapie so weit beeinflusst werden, dass er nicht nur der Aussenwelt, sondern auch sich selbst ganz anders gegenüberzustehen gelernt hat. Die psychotherapeutische Neuerziehung (Reedukation) soll den jedem Menschen innewohnenden Trieb zur Weiterentwicklung anregen und damit die neurotische Lebenshaltung des Kranken abbauen.

Bei all diesem ist das soeben erwähnte Verhältnis zwischen Psychotherapeut und Patient wichtig; dieses Verhältnis wurde von Prinzhorn einmal mit dem platonischen Begriff des Eros paidagogos in Beziehung gebracht. Es ist somit klar, dass die Persönlichkeit des Arztes mitunter wichtiger ist als die Methode. Aber trotzdem bleibt für die richtige Durchführung einer Psychotherapie die Kenntnis der Technik unerlässlich.

Im Hintergrund jedes therapeutischen Handelns, sowohl bei körperlichen Behandlungen (Somatotherapie) als auch bei seelischen Behandlungen somatischer und psychischer Erkrankungen, stehen die Lebens- und Weltanschauung des Arztes und die Kenntnis des Bildes des Menschen und der Welt seines Patienten (homo reagens, homo naturalis, homo spiritualis). Jeder Psychotherapeut muss imstande sein, seinen Patienten als vollwertigen Mitmenschen zu behandeln, unabhängig von irgendeinem Unterschied der Weltanschauungen. Immer wird er die Weltanschauung seines Kranken respektieren, ohne die seinige ihm aufzudrängen zu versuchen.

Der vorausgehende Beitrag entspricht dem Eingangskapitel zu «Psychotherapie für den praktischen Arzt – Grundlagen, Methoden, Indikationen. Leitfaden für Studierende und Ärzte» von Berthold Stokvis. Zweite, ergänzte Auflage, bearbeitet von Eckart Wiesenhütter. VI + 142 p., 1969. SFr. 24.–/US $ 5.75.

uating the results are given separately in section 5.

The table system not only comprises with clarity the data of a new paper but the sequence of the section follows the increase in the reader's interest. If the title of a paper rouses interest in a reader, his attention is then drawn to the formulation of the question. He then wants to find out about the object investigated, treatment and the resultant findings of the author.

However, the questions in sections 1, 2 and 3 not only satisfy the initial or general interest of the reader but, through the information contained, he learns whether the publication in question would be of particular interest to him. Only in such cases of so-called special interest is it worthwhile for the reader to continue further than section 4 in the table system. The contents of sections 4, 5 and 6 present a detailed and systematic enumeration of data from the scientific paper.

In order to examine the applicability of the table system, further publications from various fields of medical research were used. In this case, it was necessary to convert into the table system not only our own papers but also 'foreign' scientific papers of as many different kinds as possible.

The results of such examinations so far obtained speak in favour of the table system being used for all scientific publications in the field of medicine.

What advantages does this system offer for electronic data processing?

The difficulty of submitting a scientific publication to data processing by computer lies in the fact that the characteristic catch-words of the test data must be selected from the text.

The great amount of available literature should be arranged logically in order to be able to carry out systematic documentation. The practices of past years of classifying literature and preparing it for documentation in order to be able to deal with it by the most modern means of data processing have proved inadequate, firstly because the necessary qualified staff for encoding the literature are not available and secondly because the choice of catch-words is influenced by the interpretation of the documenter. The table system, however, presents the data in a short form and arranged in a clear manner. This means that the characteristic catch-words necessary for data processing can be found in one concise sentence and not in a long chapter or extract from the text.

The text of the sections 1, 2, 3, 4 and 6 should be useful in the documentation and evaluation of literature.

From the example of the table system given in Table IIA the following catch-words, indicated by underlining, are found:

Section 1 – involution, thymus
Section 2 – Walker carcinoma, Yoshida sarcoma, Zajdela hepatoma, benzpyrene sarcoma, withdrawal of food, heterotransplantation, adrenalectomy
Section 3 – loss of thymus weight, loss of body weight
Section 4 – histological investigation, haematoxylin-eosin
Section 6 – rats

The system presented in Table IIA shows that by separately compiling pure experimental data, it is possible to obtain details suitable for use in the documentation and evaluation of literature.

This form of publication of investigation results offers a very positive advantage in the documentation of literature. In the first instance, it fixes the centre of gravity of the facts which makes it easier for the author to provide a summary of his results and which saves the documenter from repeating the author's mental work in order to obtain the necessary catch-words for the documentation. Once the questions in the form suggested here have been answered by the author, the catch-words are thus automatically available for documentation.

In what form should the table system be applied?

I. In publications in the traditional form.

It would be recommended that the table system be added following the title, i.e. even before the introduction to the publication in question. This would have the advantage that the title, together with the name of the author and the scientific contents of the paper, can be found in a short form on the first page of the publication.

Examples of Clinical Papers

The examples given here represent the grouping and tabular compiling of data from a scientific publication in accordance with the new principle.

The data analysis was not undertaken by the authors of the publications in question but by the writer of the present paper. For this reason, no responsibility can be taken for any deviations in the interpretation of data.

All the papers described in these tables appeared in German.

Table IIIA

The Munich Siamese Twins
(Comprehensive report on two xiphopagi and one thorakopagus)
A. Obersiedermayr; K. Riegel and G. Westhues
Surg. Dept. and Natal Dept. of the Univ. Children's Clinic, Munich, Germany.
Münch. med. Wschr. *111:* 1373 (1969).

1. Reports on Siamese twins.

2. a) Twins 1968. Post-operation state:	3. a) Xiphopagus pair; total weight 3100 g. One of the twins was a normal thriving premature baby. The other showed respiratory insufficiency, and a right-left heart shunt. Separation by operation on 11th day after birth. The bigger child, 1710 g, at first in labile condition, was discharged at the end of the 4th month in the normal state of development and weight required at that age. The smaller child 1680 g, was pale and cyanotic after the operation. Died of heart failure 12 days later (complete transposition of the major vessels; foramen ovale persistence).
b) Twins 1967.	b) Thorakophagus with a common pericardium. One child survived separation by operation.
c) Twins 1959.	c) Xiphopagus, both children survived separation by operation.

4. Incubator care, drip infusion and antibiotic treatment before the operation; the smaller child was fed through a stomach tube.
Operation: under intubation anaesthesia, separation of pons of thoracic cavity, xiphoid process, diaphragm and one liver pons. Blood transfusion, calcium and prednisolon, succinylcholine, alupent. After-treatment: repeated reintubations, drainage of purulent mucus; artificial respiration, antibiotics, M-globulin and transfusions for the smaller child.

5. –	6. 4 week premature birth of two female twins.

7. In all three cases, the liver pons binding the twins together was cut through. Cause of death in the case of each sister was due to serious heart abnormality.

Table IIIC

Practical Problems of Immune Prophylaxis of Rh Sensitivisation
W. Althoff; G. Schellong and M. Stahl
Polyclin., Dept. of Univ. Children's Clin., Münster, Germany.
Münch. med. Wschr. *111:* 1386 (1969).

1. Comment on the practical problems of immune prophylaxis of Rh sensitivisation, based on three years' experience with prophylactic anti-D immune globulin treatment.

2. a) Symptoms of Rh sensitivisation (716 own cases).	3. a) In 73.3% of the cases HbF cells apparent. 1.5% foetomaternal macrotransfusions and 3% delayed HbF cells infiltrating into mother's circulation. 48 untreated women were later delivered of Rh-pos. babies; of these 3 showed slight morbus haemolyticus neonatorum.
b) Indication of an anti-D immune globulin treatment.	b) Prophylactic in all Rh.-neg. women after birth of Rh.-pos. child. After a miscarriage after 12th week of pregnancy.
c) Dosage.	c) Within 72 h after birth (miscarriage) 200–300 µg anti-D immune globulin intravenously or intramusc. Over 1% of foetal erythrocytes in the maternal blood, further treatment (serological compatibility test) and blood examination are necessary.
d) Result of treatment in 284 own cases.	d) In 83.3% of the cases the HbF erythrocytes disappear from the mother's blood. 31 treated women were later delivered of Rh-pos. children, all healthy (negative Coombs' test).

4. Proof of HbF cells in maternal bood: Kleinhauer and Betke's elution method and Schneider and Ludwig's counting technique.
Determination of blood groups and Rh-factors (2 test serums); of D-property (indirect Coombs' test); and of irregular anti-bodies of maternal blood serum (conglutination technique, agglutination technique, indirect Coombs' test).
Anti-D specific used: blood donor's plasma, containing anti-D; anti-D-IgG from *Molter* and 'anti-Rh 200' serum from *Biotest*.
Application: 200–600 µg per dose. Total dose requires 5–7 days.

5. Percentual calculations.	6. 716 Rh-neg. women after the birth of an Rh-pos. baby; recorded with the help of a central organisation in a town with over 200,000 inhabitants and 7 maternity departments.

7. All Rh-neg. women after birth of Rh-pos. child should be prophylactically treated with anti-D immune globulin. In case a complete elimination of the HbF erythrocytes cannot be obtained by using anti-D preparations, then these erythrocytes come from the mother and are Rh-neg., or they come from a child with D variant D^u, or the women has given birth to twins, one child Rh-positive, the other Rh-negative.

Table IIIE

Local Wound Treatment with the Antibiotic Ampiclox 800
L. Witzel
Uesen, Germany.
Münch. med. Wschr. *111:* 1497 (1969).

1. Examination of the effect of local wound treatment with antibiotic Ampiclox 800.

2. a) Abrasions (30–40 cm²) treated locally: 21 cases treated with chloramphenicol 21 cases treated with tetracycline 21 cases treated with neomycin-bacitracin 20 cases treated with surg. skin desinfectant	3. a) Healing period 10.2–11.6 days, slight irritation and superinfection.
b) 21 cases treated with Ampiclox 800.	b) Healing period 7.3 days, no irritation or superinfection.
c) 76 badly infected cases treated with Ampiclox 800.	c) Speedy cleansing of wound and tendency to heal, no conglutination.
d) 12 cases with wound suture treatment after more than8 hours treated with Ampiclox 800.	d) Primary wound healing.

4. Ampiclox application: powdered substance produced for intravenous injections, would be sprinkled finely on wounds once a day.
Neomycin-bacitracin 5 mg contain 250 E. bacitracin (wound powder).

5. Calculation of healing period of wounds in days.	6. ♂ patients – no age limit.

7. The use of Ampiclox 800 is particularly advantageous for large abrasions for it shortens the healing period of the wounds. No irritation or superinfection was observed.

Table IIIB

Fatal Pulmonary Embolism Occurring after Operation in the Abdominal Cavity
H. Scherer
Surg. Clinic of Hospital on the Right of the Isar, Tech. University, Munich, Germany.
Münch. med. Wschr. *111:* 1339 (1969).

1. Statistical surveys on fatal pulmonary embolism occurring after operation in the abdominal cavity.

2. Operations in abdominal cavity: 29,478 cases from 1954 to 1958; gastroduodenum, gall bladder, enterectomy, artificial anus pret. in the case of inoperable tumours, exploratory laparotomies, appendectomies, hernias, periarterial sympathectomies.	3. Total percentage of embolisms 2.1% Fatal pulmonary embolisms 0.4% Average age 60.9 yr Greatest threat in 70–80-yr-old women 58.3% Overweight 52.4% Cardiac and circulatory illness 52.0% Varicosis and thrombophlebitis 51.0% Malignant tumours 56.0% Greatest frequency of embolisms between 2nd and 15th day after operation. In March, July, December 41.0% Fulminating embolisms 64.0% Surviving longer than 10 min 50.0% Embolic threat after operation in malignant tumours 1.6%

4. Statistical methods:
Percentual calculation of cases according to criteria of point 3. Embolic occurrence after accidents and fat embolisms were not analysed.

5. Percentual calculation of cases according to the criteria given under section 3.	6. ♂ and ♀ between 29–80 yrs and older; 129 cases.

7. Total embolic frequency after abdominal operations was 2.1%; consequently 4/5 of the embolisms occurring were overcome.
The frequency of fatal pulmonary embolisms, according to other authors, amounted to 0.5%. The biggest embolic threat appeared after operation on malignant tumours. Both anticoagulant treatment and the use of the cardio-pulmonary machine in embolectomy greatly increases the prognosis and prophylaxis chance.

Table IIID

Introduction of Diseases by Travellers and Immigrants
W. Mohr
Bernard-Nocht-Inst. of Ship and Tropical Diseases, Hamburg, Germany.
Münch. med. Wschr. *111:* 1477 (1969).

1. Survey on the introduction of diseases by travellers (ships' crews) and immigrants from tropical and subtropical countries.

2. a) Persons having undertaken sea and air travel.	3. a) Smallpox (1957–67) 68 cases. Malaria tropica, tertiana, quartana. Amoebiasis (Amoeba liver abscess). Internal Leishmanosis. Kala-azar. Sleeping sickness. Worm infection. Virus infection. Mycoses.
b) Importation of germ-containing food stuffs and animal feeding stuff.	b) Cholera, brucellosis, abdominal typhoid, paratyphoid fever, shigellosis, leprosy, tuberculosis, syphilis.
c) Importation of skins. Importation of hides.	c) Antropozoonosis 'anthrax'.

4. Usual diagnostic methods for tropical diseases (in the case of malaria tropica detailed description of possibilities of false diagnosis).

5. Classification of encountered cases.	6. ♂ and ♀ – no age limit.

7. With the increase in international travel we have been brought into closer contact with tropical diseases. The major epidemics are not so much of a threat as salmonellosis, syphilis, tuberculosis, anthrax, brucellosis, atypical malaria tropica, worm infection.
These sicknesses occur frequently. Protective inoculation, health-control measures or tropical fitness examinations before departure for the tropics and examination on return offer a certain amount of protection. In addition the European doctor should extend his anamnesis on this subject.

Table IIIF

Mongolism and Leukaemia
Clinical and cytogenetic state of four mongoloid children with leukemia
K. P. Hellriegel; R. A. Pfeiffer; R. Seiler; Ch. Schütz and H. J. Rickers
Med. Univ. Clin. Cologne., Inst. for Human Genet., Univ. Münster, Children's Clin. Wiesbaden, Germany, Children's Clin. Osnabrück, Germany.
Münch. med. Wschr. *111:* 1522 (1969).

1. Clinical and cytogenetic surveys on cell degeneration in bone marrow and blood of mongoloid children with leukaemia.

2. a) Acute myeloid leukaemia in mongoloid children (4 own cases).	3. a) Trisomia 21, hyperdiploidias, no translocation or mosaic. About half the cells show numerical and structural abnormalities. Leukocyte alkaline phosphatase activity increased 1.5 times
b) Leukaemoid reaction in mongoloid children.	b) No extra chromosomes or structural aberrations.
c) Chronic myeloid leukaemia.	c) Partial monosomy (Philadelphia chromosome). Reduction of activity of alkaline phosphatase of leucocytes by 40%.
d) Acute mycloid leukaemia in infancy.	d) Diploidia, pseudodiploidia, hypodiploidia. No constant chromosome aberration.
e) Acute lymphatic leukaemia in infancy.	e) Hyperdiploidias predominate.
f) Mongolism.	f) Trisomia 21; deviation to the left of granulocytepoiesis; occurrence of leukaemoid reactions. Increase of 1.5 times in alkaline phosphatase activity of the leukocytes. Glycose-6-phosphate dehydrogenase activity increases.

4. Bone marrow direct culture (72 h): 55 metaphase plates in case No. 1 and 110 metaphase plates in case No. 2 were analysed. Time lapse of 24–48 hrs between time of puncture and insertion of culture. Blood cultures prepared by the Moorhead team's method for chromosome analysis after 24, 48, and 72 hrs. 99 metaphase plates in case No. 2 and 160 metaphase plates in case No. 3 were analysed.

5. Analysis is obtained by histogram and karyogram tables.	6. Own cases: 3 yrs old ♀, an only child. 2 yrs old ♂, second child. 5 yrs old ♂, the first of 3 children. 4 yrs old ♀, fifth child.

7. Differential diagnosis between acute leukaemia and leukaemoid reaction of mongoloid children is in some of the cases possible by chromosome analysis. Extra chromosomes or structural aberrations are a sign of haemomyelosis. The normal karyotype does not exclude the possibility of leukosis.

Examples of Papers on Animal Experiments

(The papers described in tables IV A, B and F appeared in German)

The previous customary summary which appears either at the beginning or end of a publication can thus be dropped.

II. In publications in the new form.

Apart from the above method of building the table system into a publication, there is, with the aim of saving time both in its compiling and in its study, also the possibility of changing the conventional structure of a publication extremely advantageously. The table system will make certain sections of a publication superfluous through the complete data contained.

In the introduction to a traditional publication appears the formulation of the question or an indication of the aim of the following experiments. The same material is contained in section 1 of the table system. The contents of the section: 'Material and Methods' are elucidated by becoming a component of the table system. Particulars of the patients on which the investigations were carried out or from which the investigation material was taken (in animal experiments details of the animals) are to be found in section 6. The treatment, or various treatments carried out parallel on groups of investigation objects are listed in section 2 with numerical details, the methods which where applied in the treatment and examination in section 4 and the method of evaluating the results in section 5. The details of the section 'Results' in the previous normal form of publication correspond to section 3 in the table system and are given parallel to the groups in section 2. The short text will, however, not replace exact graphic presentation, figures or tabular classifications of data of results. These indispensable representations of results will be included after the points given in section 3 in the text of the discussion.

The reconstruction of a conventional form of publication thus leads to the following result. Sections such as 'Introduction', 'Material and Methods' and 'Results' will be replaced by the table system, which is followed by the discussion in an unaltered form. The summary disappears and, as was previously the practice, the paper ends with the references. With regard to the contents, this means that the characteristic data are presented in a clear form, arranged in groups and thus form the centre of gravity of a publication, which is then followed by the actual traditionally written text part of the publication, namely the discussion with its explanation of the results and hypotheses as a second important part. Such a sharp distinction between exact test data and hypotheses within a scientific paper will in general be very useful but particularly so for beginners in research. In this way, already in the planning of experiments attention will be drawn to the actual results and not led astray by any obliging hypotheses. Furthermore, the table system offers a framework for an experiment and helps one, in fact, even compels one to formulate the question asked or the complex of problems posed in a concrete form, to distinguish the important from the unimportant and to evaluate realistically and to criticize a scientific paper, even one's own.

Conclusion

A table system has been evolved which through a concentration of data enables a quick and complete survey of publications of new scientific results. Furthermore, it offers a favourable opportunity for all the important data of a scientific paper to be included in a literature indexing system of the individual investigator.

It is possible to compare the results or the individual test data from various tables.

The concentration of data further enables the analysis of catch-words for electronic data processing and enables evaluation to be carried out very quickly and even by unqualified personnel. A source of errors in the compiling of the table system is avoided as much as possible since the necessary details are supplied direct by the author of the article through the questionnaire provided by the editors.

The principle of the table system is not only applicable in medical research but also in other branches of natural sciences with similar advantages.

Through the remodelling of a traditional publication by means of the table system, a form of publication is developed which enables more papers than previously to be published in a journal of the same size and thus raises considerably its scientific content.

I should like to thank Mr. H. Hietzker for his kind assistance in putting the table system for electronic data processing into practice and Dr. O. Wieser for his assistance in checking the general applicability of the table system in the sphere of clinical publications.

Table IV A

A Simple Staining Method to Render Specially Visible the Granulation of the Juxtaglomerular Cells of Kidneys
N. Ertl
German Cancer Res. Center, Inst. Exp. Path., Heidelberg, Germany.
Mikroskopie *21:* 320 (1966).

1. Development of a staining method to render specifically visible the granulation of the juxtaglomerular cells (JGA) of kidneys.

2. a) Fixing of kidneys with Helly solution for 6 hours. Paraffin embedding, staining with Mallory's haematoxylin solution at 4°C over night.
b) a) + followed by infrared irradiations 8–10 times for 20 min.

3. a) Granules of JGA are dark blue, cell nucleus is a light greyish blue, plasma is a light violet and the erythrocytes are yellow. Tissue structure is easily recognizable.
b) Granules are red, the other tissue as in 3a).

4. Combination of Mallory's haematoxylin staining fluid:
1 g haematoxylin
20 g Wolfram phosphoric acid salt
1000 ml aqua destillata
Let the solution mature for 4–6 weeks.
No iodine treatment after the Helly fixing.

5. Diagnosis of histological sections.

6. Swiss mice, own breed; Sprague-Dawley rats 200 g in weight, breed Gassner Munich, standard living conditions; frogs.

7. Fixing with Helly's fluid and staining with the haematoxylin combination results in a simple and reliable staining method, which renders specifically visible the granules in cells of the JGA of the kidney tissues.

Table IV B

Immunological Studies on Walker Carcinoma and Yoshida Sarcoma
F. Scheiffart; H. Warnatz; H. Götz and M. Rohrwasser
Dept. of Clin. Immunology, Univ. Hosp. Erlangen-Nürnberg, Germany.
Z. Krebsforsch. *70:* 178 (1967).

1. Examination of effect of immune sensitivisation on the growth of Walker carcinoma and Yoshida sarcoma.

2. a) Sensitivisation with tumour extract I: 5× 1 ml intramuscularly up to 14th test day, then 6× 1 ml intramuscularly from 21st–35th test day; a week later tumour transplantation (15 animals).
b) Sensitivisation with tumour extract II: 6× 1 ml intramuscularly up to 14th test day, then 1× 1 ml intraperitoneally during 4th week (without Freund's adjuvant admixture), a week later tumour transplantation (10 animals).
c) Sensitivisation with cell-free tumour extract: 1× 1 ml intramuscularly and 1× 1 ml intraperitoneally per week (during 5 weeks). In the 8th week tumour transplantation (19 animals).

3. abc) No arrest of tumour growth determined. Increasing disproteinaemia and hypoproteinaemia. Gamma globulin fraction: increase during sensitivisation, however sharp decrease after tumour inoculation.
Alpha-2 globulin: increased. Anti-bodies not provable in any of the cases.

4. Tumour extract I: tumour tissue homogenized (Ultra-Turrax), centrifuged for 10 min at 200 U/min and mixed 5:1 with Freund's adjuvant.
Tumour extract II: as for tumour extract I; in addition 2× refrigeration to –25°C.
Cell-free tumour extract: tumour tissue homogenized, 10 min at 10 000 U/min at 4°C centrifuged and mixed 10:1 with Freund's adjuvant.
During sensitivisation period blood samples were taken at 14-day intervals (during tumour growth at 5-day intervals) for serological examination. Paper electrophoresis, Ouchterlony test, Boyden's passive haemaglutinin test, examination with fluorescin isocyanate on cryostat sections, cytotoxic proof of antibodies *in vivo* and *in vitro*.

5. Percentage calculation of outcome values.

6. Wistar-Hannover inbred rats; 250–300 g in weight.

7. Circulating anti-bodies against Walker carcinoma and Yoshida sarcoma not proven by using different sensitivisation techniques. Sensitivisation could also not suppress the tumour growth.

Table IV C

Enhancing Effect of Thymectomy on Hepatotumorigenesis in Swiss Mice following Neonatal Injection of 20-Methylcholanthrene
Yasuaki Nishizuka; Kazuya Nakakuki and Masahiko Ueui
Dept. of Path., Mie Prefectural Univ., School of Medicine Tsu, Mie-ken, Japan.
Nature *205:* 1236 (1965).

1. Examination of the effects of thymectomy on the induction rate of liver tumours following neonatal injections of 20-Methylcholanthrene (MCA).

2. a) 60 µg of MCA inside 24 hours after birth, subcutaneously injected. 21 ♂ and 28 ♀ animals.
b) a + thymectomy; 28 ♂ and 35 ♀ animals.
c) Untreated animals; 36 ♂ and 43 ♀ animals.

3. a) No appearance of liver tumours. Pulmonary adenoma in all animals. 5 ♂ 14 ♀ have a subcutaneous carcinoma.
b) 17 of ♂ and only one of ♀ animals have liver tumours. All animals have pulmonary adenoma. 11 ♂ and 8 ♀ animals have a subcutaneous sarcoma.
c) One ♂ and no ♀ animals have liver tumours. 14 ♂ and 24 ♀ animals have spontaneous pulmonary adenoma.

4. Thymectomy of 35- to 55-day-old animals.
0.03 ml MCA in 1% gelatine solution.
Surviving animals were killed from 360–365 day.
Tumour identification by dissection and usual microscopic methods.

5. Sum total of tumour occurrence.

6. Swiss mice.

7. The immune potential regression by thymectomy causes a faster tumour growth rate in liver and lungs.

Table IV D

Relationship between Thymus and Hypophysis
W. Pierpaoli and E. Sorkin
Swiss Research Institute, Med. Dept., Davos-Platz, Switzerland.
Nature *213:* 834 (1967).

1. Examination of the relationship between thymus and hypophysis.

2. a) 67 animals receive antihypophysis serum; one dose of 0.15 ml/5 g body weight.
b) 27 animals receive normal rabbit serum; one dose of 0.15 ml/5 g body weight.
c) 21 animals receive antithymus serum; one dose of 0.15 ml/5 g body weight.
d) Thymectomy within 12 hours after birth.
e) Sham-thymectomy within 12 hours after birth.

3. a) 15 animals die between 8–30 days after serum injection with wasting syndrome (thymus involution).
b) No wasting syndrome.
c) No wasting syndrome.
d) An obvious degranulation of acidophilic cells in the anterious lobe of the pituitary on the 20th day after the operation.
e) No histological changes in the hypophysis.

4. Antihypophysis serum: 2× subcutaneous injections and followed by intravenous and intramuscular injections of mouse hypophysis cells + Freund's adjuvants into rabbits.
On 35th, 42nd, 49th day blood samples and serum preparation.
Antithymus serum: prepared like antihypophysis serum.

5. Addition of cases of the wasting syndrome.

6. Inbred ♂ C57/BL and not inbred ♂ NMRI mice; 25–35 days old; 14–22 g in weight.

7. A single injection of antihypophysis serum results in a wasting syndrome, thymus atrophy and death of animals.
Thymectomy on newborn animals results in morphological changes in hypophysis. This supports the opinion that a connection exists between thymus and hypophysis.

Table IV E

Long-Term Culture of Thymus Cells from Newborn Mouse Thymus Fragments
L. Tomatis and L. Wang
Division of Oncology, Chicago Medical School, Chicago, Ill.
P. S. E. B. M. *118:* 1037–1042 (1965).

1. Examination of the behaviour of thymus cells from newborn animals in long-term cultures.

2. a) Thymus tissues cultured on solid chicken plasma medium; 15 culture tubes.
b) Thymus tissues in liquid culture medium; 13 culture tubes.

3. a) Reticulum cells proliferate from 2nd day, frequent mitosis from 8th–14th day. Lymphocyte disintegration and degeneration up to 25th day. Afterwards no more lymphocytes, only reticulum cell groups.
b) Mitosis up to 40th day; from 30th day cell population: large lymphocytes, plasmacytoid lymphocytes, monocyte-like cells and macrophages.

4. 18- to 40-hour-old animals were killed; thymus removed aseptically. Tissue culture in Leighton tubes; Hanks BSS medium with phenol red as indicator; plus vitamins, glutamin, essential amino acids and 12% foetal bovine serum.
Tissue cultures were maintained at 37°C in an incubator without CO_2.
Solid cultures stopped between 1st–180th day.
Swimming culture stopped between 5th–120th day.
Histological examination: embedding in methanol, staining by the May-Grünwald and Giemsa procedures; sometimes with toluidin blue.

5. Comparison of histological findings.

6. Swiss inbred and non-inbred MAC 57 mice.

7. Depending on the technique of explantation two distinct types of cell populations were obtained.

Table IV F

DNS-synthesis in Thymus and Other Organs During the Thymus Involution in Rats with Tumour
M. Knecht and N. Ertl
German Cancer Res. Center, Inst. exp. Path., Heidelberg, Germany.
Z. Krebsforsch. (in press).

1. Examination of the DNS-synthesis in thymus and other organs during the growth of a solid Walker carcinoma.

2. H^3-thymidin-incorporation during tumour growth in:
a) thymus.
b) liver.
c) blood serum.
d) blood clot.
e) tumour.

3. a) The thymidin incorporation reaches its maximum on the fourth day after the tumour inoculation; on the 9th–10th day its minimum. This is followed by a second increase = the second maximum on the tumour curve.
b–d) Incorporation maximum on the 9th–10th day after tumour inoculation.
e) Incorporation maximum on the 8th day. This is followed on the 9th day by a decrease and then on the 10th day by a second maximum.

4. Inoculation with Walker carcinoma cells: 0.5 ml tumour-ascites fluid on the back of animals, subcutaneously injected.
H^3-thymidin dosage: 50uC in 0.3 ml phys. NaCl intraperitoneally (spec. act. 5C/mMol).
Killing of animals: four animals at a time with a 1, 2, ... up to 13-day-old tumour were killed two hours after the thymidin injection. Each time as control two animals were given the same thymidin doses.
After dissection the organs were lyophilised and burned in gratuated flasks. Estimation of radioactivity, in fluid scintillation spectrometer.
Histological control of thymus involution: haematoxylin eosin sections.

5. Mean values per animal given from double and triple activity estimations. Calculation of standard aberration.

6. Sprague-Dawley rats, 260–270 g in weight, breed Gassner Munich, standard living conditions.

7. The disappearance of thymocytes from thymus during involution is accompanied by the decrease in thymidin activity i.e. the precursor recedes from the organ. The possibility of reutilisation of precursor, e.g. as cellular 'building blocks' is given.

I can't hear – what did you say?
S. Karger will publish 50 journals next year!
(Cartoon by Scapa in «Schweizer Buchhandel»)