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All correspondence regarding contributions, subscriptions and exchanges should be addressed to:

PETER VENNE, SVD.
College of Science & Languages
Fu Jen University
Hsinchuang, Taipei, Taiwan, Rep. of China.

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FOREIGN LANGUAGE TEACHING AND LEARNING IN TAIWAN AT THE COLLEGE LEVEL

ARNOLD SPRENGER, SVD.

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This report is based first of all on my teaching experience in Taiwan since 1965. I have been teaching German and English (almost all possible language courses as well as literature) at the college level, and linguistics in the Fu Jen Graduate School of Linguistics. Throughout these years I also had ample opportunity to discuss learning and teaching problems with my colleagues at this institution, with teachers of foreign languages from practically all over Taiwan, and with my students, graduate students as well as undergraduates, who were graduated from a great variety of high schools in this country.

FOREIGN LANGUAGE TEACHING AND LEARNING IN TAIWAN AT THE COLLEGE LEVEL

ARNOLD SPRENGER, SVD.

1. INTRODUCTION

In 1965 David deCamp[1] gave a stern assessment of the English teaching situation in Taiwan. According to his analysis compulsory English in secondary schools and its concomitant teacher deficit had produced three ill effects: too large classes, English teachers taking on double or even triple load, English classes assigned to unqualified teachers. The latter problem was considered the most severe one.

> By "unqualified" teachers I mean those who do not even have the local minimum requirements for certification, low and indequate as they may be. A recent survey in Taiwan indicates that nearly forty-five percent of the English teachers in high schools had no English background at all during their undergraduate studies. Of the remaining fifty-five percent who are nominally qualified to teach English, many have taken only one or two badly taught English courses in college, and only a few have intensive English training in one of the really good universities[2].

Since 1965 many things may be said to have changed for the better. Quite a few secondary school teachers of English were given retraining courses. The use of the language lab, of taperecorded materials, and the introduction of new teaching methods—notably the so called audio-visual method—allowed for better pronunciation and speaking exercises of students on all levels. The influx of American and European English teachers helped to further raise the standard of English. There can be no doubt that the average high school graduate who was sitting for the Joint College Entrance Examination in 1971 did better in English than his predecessor in 1964.

But there is no denying the fact that great problems remain to be solved. Introduction of the compulsory junior high school system has again brought to the fore the monster of the unqualified teacher of English. Most of the English teachers at the secondary level are graduates from colleges, quite a few among them graduates from

departments other than English. Those trained in a special way for the teaching job are definitely in the minority. The question may be raised how far deCamp's assessment of the qualifications of English teachers may apply to respective graduates of colleges in the early '70s.

For years to come the majority of English teachers in Taiwan will still be recruited from among college graduates. Teachers' training courses or retraining seminars alone will not suffice to bring about an overall improvement of the teaching of English on all levels. If the vicious circle in the English teaching business is to be broken up, greater emphasis needs to be placed on the evaluation and possibly reorganization of the English programs at the college level.

In the following section of this paper the teaching of English at the college level will be discussed. Then some comments on the teaching of foreign languages other than English will be made. In the final section some suggestions regarding the study of language in general and teaching foreign languages in Taiwan in particular will be put forward.

2. THE TEACHING OF ENGLISH AT THE COLLEGE LEVEL

Students who pass the Joint College Entrance Examination are generally considered top students. Practically all of them are interested in the study of English and most of them are gifted for languages. Except for students whose native phonological system differs considerably from that of the English language—predominantly students brought up in communities where only Taiwanese or Hakka is spoken—pronunciation difficulties may be considered minimal. Students whose native tongue is Mandarin or who have managed to acquire the Mandarin standard pronunciation in school are well equipped for their task of mastering the English phonological system. Due to the strong influence of structural linguistics on the teaching of English in Taiwan during the past ten years or so, much emphasis—in many instances too much!—has been put on pronunciation exercises, often enough to the detriment of grammatical exercises. Problems facing the teacher of English at the college level stem first of all

from the fact that he has to deal with an anorganic group of students, i. e. with students from high schools with different standards in English and with students as pointed out above whose native language backgrounds may differ greatly.

Due to the predominantly passive role of the students in high school, the teacher is confronted with young people who may never have had the chance to use some English or who listen for the very first time to a teacher using English as the language of instruction. If the teacher puts his students to the test by making them write creatively on a certain topic, the average student once he dares to go beyond conversational style writing or language cliches will fail to produce grammatically correct sentences.

Six years of high school training have failed to implant in the student a feeling for English grammar. The student has learned a battery of grammatical rules and definitions on the one hand and on the other hand is constantly checking the dictionary but he feels lost when asked to combine the two to form grammatically correct and meaningful sentences. The failure to demonstrate to the high school student the creative power of grammar and the neglect of practice as a means to put the language machine into operation have conditioned the student to shy away from taking any active part in classroom activities where he is asked to go beyond mere reading exercises or mere imitation of the teacher. The teacher who has been assigned a conversation course faces the formidable task of guiding the student into responding freely and naturally. Often enough his job turns out to be quite embarrassing and he takes refuge in drilling or reading exercises. Correction of written exercises or compositions are time consuming and hated by most teachers; yet it is by checking compositions that the teacher comes to realize how far the student really is from mastering the structure of the new language. One more problem needs to be pointed out here. The student who has learned many vocabulary items but has not been taught how to put them to use in actual sentences, will often lack the feeling for the functional and/or semantic range of words. He may even construct grammatically correct sentences but fail to

observe semantic restraints on certain words.

Are there any answers to these problems and to a host of other related problems? At least English departments should be able to come to grips with these problems. But neither a simple continuation of high school methods nor great emphasis on English literature at an early stage will do. What is called for is a thorough investigation and assessment of the students' strong and weak points at the very beginning of their freshman year. An early interview and a composition written as soon as possible might dispel quite a few illusions on the part of the teacher as well as of the student and might be used as a basis for determining the coursework. No matter what the goal of an English department may be, during the first two years, special attention should be paid to the mastery of the language, i. e. the mastery of the basic skills. The plight of so many teachers of English in secondary schools has aptly been described by deCamp.

Diplomats, journalists, business people who are not able to handle the lingua franca of our modern age skillfully are sort of an anachronism; and even or rather especially those students who want to familiarize themselves with English and American literature need to stand on firm ground, i. e. must have a firm grasp of the structure of the Engligh language, must have the skill to approach language analytically, must go beyond just memorization of definitions and rules, must be able to compare and to contrast constructions, to observe regularities and to generalize—if they are to understand and to appreciate great literature. In regard to the latter field of academic endeavour one may be justified to raise the question as to what extent the conflict between the language teacher or grammarian and the literary scholar, the strict separation between grammatical and literary studies are detrimental to both sections of this one discipline. Since both work with actual samples of language usage, grammatical and literary scholarship should be complementary and mutually assisting. Organization or reorganization of English department curricula along these lines could prove to be most effective for raising the standard of learning and teaching English at the

college level and in the long run help to solve the respective problems at the secondary school level.

A problem of a special kind is raised by the compulsory freshman English courses in all college departments in this country. Here teachers of English feel most frustrated. In general two courses with two credits each are required: one course for reading and one for conversation. Because of lack of coordination the two courses are often enough assigned to two different teachers who hardly know each other, do not work together, use different text books and do not get to know the students well since they see them only twice a week. Text books chosen for the reading course are in many cases way beyond the reading ability of the students, contain no suggestion for discussion or reports and cause the student to listen passively to the teacher or to tire himself out with vocabulary checking. The conversation teacher finds himself confronted with a twofold challenge: the very difficult choice of conversational material and the herculean task of making a big group of students speak English actively and creatively. Since the best teacher realizes that, because of the peculiar background of most of the students, his cause is doomed to failure, the conversation course will sooner or later deteriorate into a drill of some sort or another. In short, freshman English courses will hardly go beyond the high school level. Unless students have personal contact with foreigners or have them as teachers in various classes (using English as the medium of instruction) there is hardly any chance left for them to further improve their English language skills. In fact, some college students claim that they haven't gained anything at all from being whisked through college English courses.

If it is agreed that the English language is of the utmost importance for students in our modern age of communication, the conditio sine qua non for high academic achievements in almost any scientific field, a fresh look should be taken at the freshman English courses. We should question whether teaching just two courses and having the students take them in their first college year makes any sense. If the curriculum of a department should not allow the

teaching of English except during the freshman year, then a program should be set up at least for that year, and at the same time it ought to be more intensive and more systematic, based on sound linguistic principles and devised only after a thorough investigation into the freshmen's strong and weak points. On the importance of good language programs more will be said in the following section. The new program for the teaching of German, French, and Spanish worked out during the past two years—to be discussed below—may help focus the interest of all who are concerned with successful foreign language teaching and learning.

3. THE TEACHING OF FOREIGN LANGUAGES OTHER THAN ENGLISH

Since the early '60s some colleges have been running departments of French, Spanish, German, and Japanese. There is no teaching of these languages in secondary schools and up to now no graduate schools have been established. The students of these departments were expected to master within four years the language skills and become acquainted with the culture and especially the literature of the respective countries. A critical assessment of the efforts made and the results achieved suggests that the far flung goals have not been reached, that only relatively few graduating students were equipped with a working command of their new language and that even fewer had sufficient knowledge and know-how to carry on studies on a higher academic level.

Asked why things did not work out as expected one is tempted to put the blame not so much on poor teaching as on the faulty curricula of the departments that had been set up prior to any experience in this field. Once the curricula had been fixed and approved by the Ministry of Education, they had to be followed strictly and hardly any room was left for experimentation. An attempt to point out some of the major deficiencies of the original curricula may help to facilitate the planning of future language programs. Since the writer of this paper has been teaching in the German department since 1965 and has been concerned about

progress in foreign language teaching in Taiwan ever since, his discussion of the curricula of the German department may throw some light on the problems teachers in language departments other than English have to deal with.

3.1 The Original Curriculum

Experience has taught us that the major deficiencies of the original curricula were the following: 1) an overload of required courses, 2) not enough consideration of basic language courses and too heavy emphasis laid on literature and that too soon, 3) neglect of English as an essential part of the training of any student majoring in modern languages, 4) no concentration in any minor field.

The total of required credits amounted to 156 (110 for German alone), leaving practically no room for elective courses, getting students and the school administration into trouble every time a student had failed a course and had to make it up. With a total of 142 credits (including elective courses) required as a minimum for graduation by the Ministry of Eduation, the German department with its 156 required credits (!) was second to none in this country followed by the French department. What made this heavy load of required credits even more unbearable was the fact that the curriculum included too many two-credit courses for which no qualified teachers could be recruited or which were disliked by teachers for the simple reason that in a two-credit course not very much can be accomplished. Strong emphasis on literature is in itself by no means objectionable, but students must first be able to handle the new language to a certain extent if literature courses are to generate any interest or excitement. This is at the very root of our problems. Students were asked to study literary texts which they were not able to analyse structurally and were consequently beyond their ability to understand and appreciate fully. By having to focus their attention on literary studies they often enough forgot in their junior and senior years the bits of grammar they had picked up in their freshman and sophomore years. The bulk of the language courses were introduced only in the sophomore year. In the critical freshman year only a total of six language credits (language courses with six

credits altogether) were offered per semester besides a host of generally required courses like Chinese Literature, English, Philosophy etc. Concentration on the new language was hardly possible. At the end of the first year of college, students had not yet really acquired a taste for the new language. At the same time, their formal training in English had been concluded and there was no future chance for them to participate in any advanced English program. What proved to be especially discouraging for the graduating students was the fact that the curriculum had not allowed for concentration on a minor subject as immediate preparation for jobs where the respective foreign languages could have been put to use.

3.2 The New Curriculum

The need for reforms in foreign lanugage learning and teaching has been felt in this country for a long time. When about two years ago the government urged the schools to come up with suggestions for new approaches, permission was granted by the Ministry of Education to the German, French, and Spanish departments of Fu Jen University to rearrange their language curricula. In the academic year 1970/71 the French and German departments began experimenting by putting some of the sophomore and junior language courses into the freshman year thereby intensifying the first year language program. When at the end of the first semester astonishing results had been achieved suggesting further reforms, a completely new four year curriculum—basically the same for the German, French, and Spanish departments—was worked out, discussed with the respective department heads of other colleges and officially approved by the Ministry of Education. The new programs have been in operation since the beginning of the first semester of the running academic school year (1971/72).

The new programs, to be discussed below, are intended to remedy the shortcomings of the old curricula; at the same time they aim at opening up new avenues for a successful study of foreign languages.

In the new approach the amount of required credits has been cut down considerably. At the same time the number of language and literature courses has been reduced to the following essential

courses: Grammar (15 credits), Reading (15), Conversation (12), Composition (8), Translation (10), History of Literature (6), Culture (12), Practical German (French, Spanish), 4 credits, allowing for greater flexibility in experimenting within the program. The curriculum provides for up to twenty credits in English. A minor field is built into the program (22 credits). In the junior and senior years students are free to select any subject as a minor. The total amount of credits for this new four year curriculum does not go beyond that of the old curriculum discussed above.

The freshman year is considered crucial in the new program. Twenty to twenty-five hours per week of intensive language training make the students feel very soon at home in the new language. Courses that would interfere with concentration on the new language, notably English courses, are postponed and offered during the second or even later years. A team of two to four language teachers, working closely together, make the student understand, read, speak' and write the new language from the first hours on.

Experience has shown that the four basic language skills are complementary and mutually controlling and assisting.[3] It seems to us that many language programs deprive the students of powerful means to accelerate their rate of progress in learning by strictly separating grammar courses from reading and conversation courses or by excluding the latter and composition courses completely from the initial stages of language learning. If students are taught in such a way that at the end of their first hour of instruction some of them dare to stand in front of the class and address their classmates in the new language and if freshmen have written their first composition within the first two or three weeks (which has been practiced!), the students will be filled with enthusiasm and will be well on the way to success. This approach, if systematically carried out throughout the freshman year, will not only force the students to become actively involved in the language program, it will moreover suggest to the teacher ever new methods and tricks (often enough on the spur of the moment) to cope with new teaching situations and rely more and more on the students' own excellent capabilities

for acquiring language skills and analyzing complex structures. Every language teacher probably knows what an exhausting job it is to teach language classes where students show no interest in the study of language and seem to be bored to death; on the contrary he will have experienced that new ideas flock to him by the scores, that teaching a language class is truly rewarding or even one of the greatest pleasures, when the students show an interest in the study of language and have tasted success and achievement.

At the end of the year quite a few freshmen may well end up having a firmer grip on the language than junior or even senior students. The sophomore year still puts a lot of emphasis on the essentials of language, but fewer language courses will be offered, since the students are expected to do quite a bit of work on their own: writing compositions, presenting oral and written reports to the class, starting to translate newspaper articles and possibly short and easy pieces of literature into Chinese. Basic language courses need not necessarily consist of memorization of grammatical rules and easy dialogues, they could well be used to provide the student with a taste for interesting aspects of the target culture by introducing him to such activities as newspaper reading which not only provides information on present day social, political, economic, technical, literary, religious and recreational problems and activities, a welcome relief from textbooks, but which also puts the student into contact with the present usage of the target language. This exercise forces him to analyze grammatical structures correctly, provides him with a wide range of modern vocabulary items not to be found in dictionaries, and what is of great importance in our time of fast changes, helps him to become acquainted with at least some of the rapid changes modern languages are undergoing. Within the last twenty or thirty years the German language has not only seen many vocabulary items come (note the present tendency to use abstract terms) and go, but even sentence structure has been affected by such processes as compounding, nominalization of verbs and adjectives, avoidance of dependent clauses and preference for embedded main clauses, tendency towards a standard subjunctive

with 'werden' etc.[4]

Newspaper reading, kept up through the remaining college years, will not only bring the students up to date on matters of daily concern to the people of the target country, it may become also a very fascinating introduction into the world of literature and literary criticism since the weekend edition of almost any daily paper and, of course, many weeklies try to keep the reader informed on major events on the literary scene.

Newspaper reading[5] was given here as an example for a basic reading or even grammar course that provides for a great variety of attractive reading materials and at the same time can well be used to deepen the student's understanding and knowledge of the structure, i. e. the inner working of the target language. Language teachers will no doubt start improvising basic new and interesting language courses once the student has been brought to the point where he participates enthusiastically in all language activities and begins to discover his ability for analysis and critical study.

The sophomore year with its reduced number of target language courses leaves room for an intensified English language program which to us seems to be of greatest importance for students majoring in modern languages. A language student who is not equipped with at least a working command of English will be hampered in many respects, especially in trying to get a job after graduation and still more in pursuing his studies abroad. The curriculum provides for an English program in the sophomore year offering up to ten hours of English per week. A critical assessment of the students' knowledge of English at the very beginning of the second year will decide what the actual coursework should be, copying in general the approach of the freshman year but possibly on a more advanced level. If the freshman year has been successful, i. e. if the students are quite familiar with their new language and handle the basic language skills fairly well, they will be psychologically prepared to come to terms with the English language relatively quickly and thus the tiresome study of English in high school may prove not to have been made in vain, after all.

The courses required by the school, if not taught in the freshman or sophomore years, may be offered in the following year, even using either of the two foreign languages—provided a competent teaching staff is available and the administration of the school can manage the schedule. A coordinated approach of all the various foreign language departments in a school could help solve many staff and administrative problems.

Courses in the culture and literature of the target country are reserved for the last two years. But here again the curriculum provides for a measure of flexibility that allows the setting up of special courses on various aspects of the culture of the target language if certain events or developements suggest it and a qualified teacher is available. No institution could claim to know definitely which is the best way for a foreign student to travel in order to become well acquainted with some of the highlights of another culture.

At the beginning of the junior year the student must have made up his mind on how to make the best use of the languages he has been learning. He is asked to select a minor subject in the field of his liking to prepare for his future job or for further studies after graduation. Those students who prefer to concentrate on more advanced literary or language studies—experience has taught us that they will be relatively few—need not select a minor but have to take literature or advanced language courses instead. Needless to say, students with this kind of language and literature background would be excellent candidates for prospective graduate schools of their respective departments.

Concluding the discussion of the new curricula for foreign language departments other than English we feel that one more important feature of the new language program, although not realized yet, should be mentioned. It is being planned, at least at Fu Jen University, to have linguists offer introductory courses in linguistics to the students of all language departments, making available to the latter—as soon as possible—the very fascinating insights into the puzzles and the beauty of language, man's main vehicle for com-

munication. But discussion of certain aspects of linguistic findings applied to the study of languages and to our language teaching situation brings us already to the final section of this paper.

4. SUGGESTIONS FOR FURTHER DISCUSSIONS

4.1 Language Teaching Objectives

In a time of fast changes when new situations arise for nations and their people, when the value and validity of existing educational systems are being questioned and revised so as to become more appropriate to the generation of students that tomorrow has to cope with problems of modern society, one is no doubt justified to raise questions like: what are the long-range objectives in the teaching of foreign languages in Taiwan, are there any priorities among these objectives, how are these objectives to be attained?

According to W. M. Rivers the objectives of teaching foreign languages fall into six categories:

> The six classes of objectives are as follows: to develop the student's intellectual powers through foreign language study; to increase the student's personal culture through the study of the great literature and philosophy to which it is the key; to increase the student's understanding of how language functions and to bring to him, through the study of a foreign language, a greater awareness of the functioning of his own language; to teach the student to read the foreign language with comprehension so that he may keep abreast of modern writing, research, and information; to bring the student to a greater understanding of people across national barriers by giving him a sympathetic insight into the ways of life and ways of thinking of the people who speak the language he is learning; to provide the student with skills which will enable him to communicate orally, and to some degree in writing, with the speakers of another language and with people of other nationalities who have also learned this language. Each of these objectives has at some time or in some place predominated in the stated aims of foreign language teaching.(6)

In his article referred to above deCamp, back in 1965, complained that the majority of the graduates—which means also the majority of the future teachers of English—of the "highly traditional departments of most universities and colleges in Taiwan" learned varying amounts about English literature but virtually nothing about

the English language.[7] We are not in the position to verify this complaint nor could we make any definite statement on how far this might apply to the respective English departments in 1972. But it must be pointed out that the curricula of the English departments require quite a few literature courses which in many instances students are not prepared for, neither from the point of view of sufficient literary background in general nor from the point of view of knowing about and mastering the English language. In reading literary texts language all too often drops out of sight and all topics deserving attention are sidetracked or simply neglected except those the teacher himself is interested in. What is called for is a far better language preparation if reading literary texts is to become more meaningful and more challenging. The American language teacher and linguist H. A. Gleason expresses the conviction, which is shared by many other American language teachers, that even American students do not know their language well enough when it comes to reading literary texts.

> Clearly, close reading of text is successful only if certain conditions are met, and of these one of the most important is the proper preparation of the students. We cannot expect them automatically to be qualified to discuss language problems intelligently and revealingly. They must have both a technical vocabulary adequate to the task and some skill in approaching language analytically. That is to say, they must have some prior training in grammar that is more than just memorizations of definitions and rules. They must have been taught to compare and contrast constructions, to observe regularities, and to generalize. Faced with an Elizabethan sentence that is obscure to them, they must know how to dissect it into its component constructions, to seek parallels, and to formulate hypotheses for testing.[8]

Do students of the English departments in Taiwan meet these conditions? What do they really gain by being hustled through these courses? Are their intellectual powers developed through this type of lecture courses? Do the latter increase the student's personal culture? If these were the objectives to be attained, reading of translated texts and discussion of master works in the student's mother tongue would probably be the most appropriate way of dealing

with foreign literature. The question of the objectives of a department is of uttermost importance. In our modern age of communication all students of the language departments must be provided with skills which will enable them to communicate orally and in writing with the speakers of their target language. They must be able to read foreign literature with comprehension so that they may keep abreast of modern writing, research, and information. Where are students in Taiwan that may pick up e. g. any English newspaper or magazine and read comprehensively about recent developments and events in America as e. g. the presidential campaign or the staging of a famous modern play? The latter are part of the American way of life, do belong to the cultural life of present-day Americans, and English-language students should be brought to the level where the reading of this type of literature would no longer pose grave questions. Are the programs of English departments geared towards such a goal? Are we aware of the tremendous influence the press wields in highly civilized countries, are we training our students to learn to read critically?

Much more ought to be said about language teaching objectives. In average graduating classes the number of those students who choose to further concentrate on literary studies is minimal. The majority of the students will either go abroad, possibly pick up still other subjects of study or apply for teaching jobs in secondary schools or look for jobs in business, trade, tourism etc. where the knowledge of language plays an important role. In the planning of future language department curricula care must be taken that these language goals are taken into consideration. Further discussion of the objectives of foreign language teaching would make this one thing absolutely clear: in the seventies the overall objective of a student majoring in modern languages must be that he is able to handle the foreign language as perfectly as possible, i. e. that he can communicate with native speakers of the new language freely in speaking and writing, that he has a firm grip on the structures of that language and consequently is able to read with comprehension which makes it possible for him to become acquainted with literature

of any kind which in turn will encourage him to continue reading in his field also after graduation, keeping him in contact with some of the enormous quantity of valuable information poured out by printing presses.

Again, in revising old or setting up new curricula of language departments, greatest care must be taken that this overall objective of foreign-language teaching is never lost sight of, it must definitely determine the coursework of the first years and reach into all other objectives, which will pose the fewer questions the more the overall objective is being attained—the mastery of the language!

Everyone who is concerned about the teaching of foreign languages in Taiwan will probably, more or less at least, agree to the statement that the last mentioned, most basic objective has not (or at least not fully) been attained inspite of great efforts made and the vast amount of money spent. Besides many other reasons, the various approaches to teaching foreign languages, in other words, methods used or the way they have been applied may have been instrumental for this failure. During the past decade or so mainly two approaches to foreign language teaching have dominated the scene in Taiwan: the grammar-translation method and the so called audiolingual method. Both will now briefly be discussed.

4.2 Predominant (Foreign) Language Teaching Methods in Taiwan

One of the oldest foreign language teaching approaches in the world is the so called GRAMMAR-TRANSLATION method. It goes back to the formal teaching of Latin and Greek the learning of which was for centuries a predominant occupation of many students, a study justified as an intellectual discipline. By learning these languages the student's mind was to be trained, the languages were to be analyzed logically, complicated rules and paradigms were to be memorized, and the latter were then to be applied in translation exercises. Classical literature, i. e. texts written in these two languages were considered the key to great civilizations. Certain texts as representative pieces of that literature were to be read and translated, writing exercises had to imitate these texts. When the study of modern European languages, after much opposition from sup-

porters of classical studies, became also accepted as an intellectual discipline and a guide to great literature and philosophy, modern language training was modeled after that of classical languages. This method still dominates the scene in many parts of the world, it has been almost exclusively been the foreign language teaching approach in secondary schools of this country up to now and still plays a very important role in quite a few English departments, of course, on a somewhat advanced stage. Wilga M. Rivers gives a general description of this approach which comes close to the foreign language teaching business in many of our schools.

> The classical method has persisted in many areas, despite attempts to introduce methods which may be considered more appropriate to the teaching of a living language, with a contemporary literature, to high school students, whose range of abilities and interests is very wide. This resistance to change in methods may well have been due to the constant publication for school use of textbooks written by scholars not engaged in teaching at secondary level. Prepared in the quietness of a study away from the urgent realities of the classroom, many such textbooks are notable for the meticulous detail of their descriptions of the grammar of the language, based on the traditional categories of Latin and Greek grammar, their preoccupation with written exercises, especially translation exercises, and their lengthy bilingual vocabulary lists. They usually contain long extracts from great writers, chosen for their intellectual content rather than for the standard of difficulty of the language or their intrinsic interest for the adolescent student. These textbooks dominate the work of the teacher who follows this method, his most immediate aim becoming the completion of all the exercises in each lesson and the covering of all the lessons in the book in a given period of time. The teacher who was himself taught by this method and who has not had adequate training in modern-language teaching methodology continues this tradition. New textbooks modeled on the old tend to imitate the grammatical descriptions and exercises of their predecessors with the result that archaic structures and obsolete vocabulary and phrases continue to be taught to successive generations of students. A teacher wishing to use active methods who is forced to use such a textbook tries to introduce some practice in communication into his classes but is frustrated by the academic and unreal forms of language it contains and the enormous range of vocabulary, while his students are bored by the repetitive form of the innumerable written exercises.(9)

What are the objectives of this type of language teaching? Does it aim at a formal training of the student's mind? Is it meant to confront the high school student(!) with an intellectual challenge? Is this approach appropriate for implanting the language skills into the students which is considered an urgent need in our age of communication? But the respective programs do not provide for any intensive training in these basic skills: the foreign language is not used in class to any extent, except when the teacher asks stereotyped questions about a passage and the students answer with a sentence directly drawn from the text; little stress is laid on accurate pronunciation and intonation but instead a lot of emphasis is put on knowing rules, yet if it comes to putting these rules into practice in expressing one's own meaning in speaking or writing the student fails since he had no training in the active use of the language. The average student is overloaded with work he finds monotonous and boring: learning many vocabulary items in isolation, writing exercises, translating. And all this does not give him the feeling of having achieved much. When does he after years of study begin to speak, i.e. to really use the language?! The passive role of the student, that is the cause of so much frustration for many a language teacher at the college level, has its root in this unchallenging type of work he is forced to do in the high school English class: learn and absorb learning materials to satisfy the teacher or to prepare for unavoidable examinations. What really has been the objective of six years of high school English? What has been achieved?

Already at the end of the 19th century there began a reaction to the exclusive grammar-translation method in Europe. Contact with the foreign language, actual use of the foreign language in meaningful situations was advocated. Translation and memorization of grammatical rules were deemphasized. Because of great advances made in the field of phonetics, correct pronunciation became an important consideration. Demonstration, dramatization of speech situations and stimulating reading texts were considered helpful in learning the new language. The approaches changed somewhat with the leaders of this movement, but all may be said to have

been some kind of direct method.[10]

In the twenties and thirties of this century American structural linguists and behaviorist psychologists began to exercise great influence on the study of language. Since these scholars called for what was then termed strictly scientific and objective investigation of human behavior, language was studied descriptively, language was regarded as a living thing, always subject to change. When during and after World War II American authorities discovered that there was a tremendous shortage of interpreters for contacts with military allies and enemies alike, they turned for help to those people who had been for quite some time analyzing foreign languages descriptively and even devised teaching methods based on their approach to language. These methods followed up the basic objectives of the various direct methods putting even more emphasis on enabling the learner to communicate in the foreign language. Since the listening and speaking skills were considered basic to communication and were to precede the teaching of the reading and writing skills the term "aural-oral" was coined which was later replaced by the now widely known term AUDIO-LINGUAL[11]. This approach to language teaching was supplemented by the use of technological aids such as magnetic tapes, tape recorders, and even fully equipped teaching laboratories which were devised primarily in support of the teaching of listening and speaking skills.

The audio-lingual method soon found its way into all continents and swept also into this country. For almost a decade it has been applied in a number of schools notably in colleges where the actual communication skills were emphasized. It proved to be especially helpful to the teaching of those languages that are not being taught in secondary schools at all, i.e. that are introduced only at the college level. As mentioned in the beginning of this paper, the application of this new method was only to a limited degree accompanied by success. An attempt to find some answers to the question why the audio-lingual method cannot be called, at least up to now, a full success in Taiwan, may prove to be of some help with regard to future efforts in this direction. As is the case with any teaching

method, only people in charge of language programs and teachers who have a clear picture of the objectives to be attained, who understand the rationale behind the method and are capable of freely applying the method to ever changing teaching situations have a chance to fully attain the objectives. Teachers who are not well acquainted with a method and are never given the appropriate information or are not interested in literature that might readily give access to an understanding of the principles underlying the approach will easily be frustrated in their demanding job and finally may turn out to be failures. During the past years language labs mushroomed all over the country. Where are experienced programmers, directors, and teachers who know how to make the best out of this potentially powerful yet at the same time very expensive teaching and learning aid? If the input, i. e. if the program set up for the lab is poor and if it is not geared to supplement the teacher's work in the classroom, the output, i. e. the results achieved, will definitely not be worth all the troubles and expenses. Students are apt to react with apathy or even hostility to such an approach. Where are people trained or experienced in setting up programs designed for the audio-lingual approach and appropriate to students of different backgrounds and different age-groups? Then there is the problem of teaching materials, a very serious one, especially when the audio-lingual method is applied on a somewhat more advanced stage. Another problem has to be touched upon: whereas the grammar-translation method is not too demanding on the teacher—when he is tired, he can always assign the class a written exercise—the audio-lingual method makes considerable demands on the teacher. He must be able to keep oral practice smartly and for that he should have near-native articulation. Especially demanding are intonation exercises where he models long or even quite complex utterances for the students. If classroom exercises are not to become dull and boring to the students, the teacher's imagination must provide for a change in activity and for the best use of persons and situations in the classroom. These and many other demands on the teacher make it virtually impossible for him to successfully teach a large number of classes during a day.

But there are freshmen English teachers who are assigned even quite a number of parallel classes a day. No wonder that they complain about being weary of the teaching materials and their teaching method, that they feel emotionally and even physically exhausted.

Other pitfalls that could be avoided should briefly be mentioned. The audio-lingual method may become very tedious, causing fatigue and distaste on the part of the students, especially those of the college age, if the techniques of this approach are applied rigorously by teachers who are not sensitive to the reactions of students and who lack inventiveness and resourcefulness which could make things attractive to students. It is saddening to observe teaching situations where students simply repeat utterances of the teacher almost for hours without any change in techniques applied or materials used. It leads the audio-lingual method ad absurdum if the exercises exist in nothing but mimicry and drilling of speech sounds in isolation. Due to the strong interest of early structural linguists in the phonology of language the audio-lingual method, again if not known in the full range of its possible objectives, is believed to be mainly a means to teach the phonology of the foreign language. Much precious time is wasted on exercises that either are not needed or won't change much anyhow. Grammatical and intonational exercises accompanied by appropriate explanations leading to a deeper understanding of the inner working, richness, and beauty of the new language are neglected, so is the development of communication skills that go beyond the formation of language habits.

What about the time lag between the presentation of materials orally and the teaching of the same materials in printed or written form? Divers answers have been given to this question. Experiments have shown that quite a few students feel at a loss when forced to depend on the ear alone[12]. Students of the visual type would be deprived of a powerful learning aid if reading and writing would be introduced only weeks or even months after the oral introduction of learning materials.

That materials presented orally and visually at the same time are more easily learned is also suggested by Rivers:

> The strongest argument in favor of some visual support for the aural presentation of the foreign language in the early stages comes, however, from studies of organization in perception rather than from studies of the relative effectiveness of different sense modalities in learning. We must consider seriously the question, what are we asking the student to grasp in our aural presentation? In our own language, our understanding of what is aurally presented is largely guided by well-established word associations, familiar syntactic structures which lead us to expect certain classes of words in certain positions, so that if we do not hear clearly we can frequently supply what is missing from the cues given by the context. The student learning a foreign language finds himself, especially in the early stages, completely bereft of supports. He has to hear everything, and hear it clearly. He has also to retain everything, if he is to learn the aural material presented. If he is intellectually capable and highly motivated, he will take all this in his stride; but if he is uncertain of himself, anxious, has poor auditory discrimination, or indifferent powers of retention, what he has to learn passes in the air, and he has no support to which to turn to give him a further chance to grasp what he has not understood. Much of his puzzlement is due to his inability to retain strange sounds in unaccustomed groupings long enough to rehearse them again subvocally and so strengthen the memory trace. The slightest wavering of attention through distraction, mental fatigue, or satiation means that he has lost something which he cannot hear again without the co-operation of another person.[13]

It is suggested here, then, that students from the first week on should be trained to practice all four language skills which then could be complementary and mutually controlling. Structurally and vocabulary-wise controlled composition exercises, introduced already during the very first weeks of the language program, have proved to be an excellent means for the teacher as well as for the students to measure the progress made in the use of the structure and vocabulary. They were often enough indicative of weak spots with regard to grammatical and vocabulary items and suggested appropriate review or special drill exercises.

A good way to break into the new language, to establish a 'linguistic beachhead'[14], is the use of dialogues, to be memorized, dramatized, expanded, changed, used as models for self-constructed dialogues, eventually leading the student under the guidance of an experienced teacher to communicating freely. Especially in China,

where students are extremely afraid of communicating orally in the classroom, memorized dialogues have often been instrumental in having helped the student overcome his shyness or fear. Since a lot of information with regard to this quite central feature of the audio-lingual method can be found in books and journals dealing with foreign language teaching, nothing needs to be added here(15).

Discussing the audio-lingual method it goes without saying that this approach to language learning is not equally appropriate to all students. For students of secondary schools it is at present probably the best method known to us. But the older the students the more they will in general object to an approach where they at times may feel asked to act in a "childish" way. With students of the college level this method should, as it seems to us, only be applied with great skill on the part of the teacher by using teaching materials congenial to students of that particular age. The audio-lingual approach seems to be most fitting for the beginning stages of foreign language learning which best are condensed to a minimum span of time by starting off with a rather intensive program so that the students may very soon proceed to a level where the study of the foreign language becomes at the same time more interesting, more meaningful, and intellectually challenging. But it is precisely at the more advanced level of language learning that linguistic structuralism and the audio-lingual method—as far as it is based on its principles —fail the language teacher who aims at making the student feel at home in that very complex yet most creative part of language—in grammar. By way of structural pattern drills the audio-visual method attempts to build in systematic habits in foreign language, but it does not explain or show how its patterns are tightly interwoven and which rules govern acceptable and comprehensible utterances in connected speech or writing, where constantly higher-level choices must be made which set lower-level patterns in operation. The student who has as yet knowledge of the structure far short from being complete expects the language teacher to tell him clearly how the system of the new language, i. e. the network of interrelationships works. The teacher who never had a chance

to delve that deeply into grammar and who is not aided by the teaching materials he is provided with, will ultimately shy away from accepting the challenge of attempting to make difficult structural relationships clear to the student, thereby depriving the latter of a great chance to come to terms with basic structural problems of the new language, which in the long run may prove to be disastrous to him, in that he never gets beyond the stage where he produces but stereotyped expressions and sentences in speaking and writing. Even the student's reading comprehension may suffer greatly from this lack of analytical power. The average language student in Taiwan is beset with this type of trouble, he feels at a loss when it comes to a deeper understanding of the new language, even more so when it comes to an understanding of his own language, a problem that will be touched upon below.

4.3 The Rehabilitation of Grammar

The linguistic structuralists relying heavily on their so called objective study of language and on theories put forward by behaviorist psychologists failed to come to terms with grammatical problems that always have puzzled or plagued students of languages. At the end of the fifties of this century a new approach to the study of language came into prominence inaugurated by the publication of N. Chomsky's famous *Syntactic Structures*[16]. This book was an attempt to remedy the deficiencies of structural linguistics. But it went also far beyond that by calling for a fresh look at the analysis of grammar, by raising again questions that already had been dealt with by European logicians and linguists centuries ago.

4.31 Transformational-Generative Grammar

The new approach has become known under the term Transformational-Generative Grammar and is considered by many linguists the predominant theory of language on the American scene at present. Linguists are no longer concerned only with the analysis and description of sentences already present in a given corpus of data, i. e. of merely observing the so called 'performance' (the actual use of foreign language in concrete situations), they also aim at investigating the 'competence' (the speaker-hearer's knowledge of

his language) in language. In connection with research on these problems attention is again paid to what has been called linguistic universals or universal grammar which may be considered a set of structural rules common to all human languages.

Linguists try again to come to terms with the central aim of language study which is to find an answer to the question: how do people communicate by means of language? A mere description of given sentences will not suffice since it does not give an answer to the question: What makes sentences correct? A grammar that provides answers to our questions should be a device for generating correct sentences in the respective language. A transformational-generative grammar, then, is a set of rules that sheds light on the ability of a hearer and speaker to produce and understand an indefinite and, theoretically at least, infinite number of correct sentences. Chomsky has repeatedly expressed his own views on this topic:

> Within traditional linguistic theory, furthermore, it was clearly understood that one of the qualities that all languages have in common is their "creative" aspect. Thus an essential property of language is that it provides the means for expressing indefinitely many thoughts and for reacting appropriately in an indefinite range of new situations. The grammar of a particular language, then, is to be supplemented by a universal grammar that accomodates the creative aspect of language use and expresses the deep-seated regularities which, being universal, are omitted from the grammar itself....
>
> Modern linguistics, however, has not explicitly recognized the necessity for supplementing a "particular grammar" of a language by a universal grammar if it is to achieve descriptive adequacy. It has, in fact, characteristically rejected the study of universal grammar as misguided; and, as noted before, it has not attempted to deal with the creative aspect of language use. It thus suggests no way to overcome the fundamental descriptive inadequacy of structural grammars.(17)

The declared goals of Chomsky and his many followers have created a tremendous amount of interest in the study of language in general and of grammar in particular. By now a wealth of literature is available offering new insights into language problems, giving new answers to old questions, providing the teacher with a kind of information that could change his own attitude toward the study of

language and, if used prudently in certain teaching situations, could become a source of excitement and intellectual challenge for the students. The following quotation from a recent article called the "Psycholinguists" in which the creative aspect of language is being expounded will be given here as an example of how the questions raised by the new approaches to grammar provide new insights into the complexities of language. Reasoning of the following type might become most influential in changing the teacher's outlook and consequently his approach to language teaching which in turn could lead to a change in the students' mentality and their attitude towards the study of language.

> Original combinations of elements are the life blood of language. It is our ability to produce and comprehend such novelties that makes language so ubiquitously useful. As psychologists have become more seriously interested in the cognitive processes that language entails, they have been forced to recognize that the fundamental puzzle is not our ability to associate vocal noises with perceptual objects, but rather our combinatorial productivity—our ability to understand an unlimited diversity of utterances never heard before and to produce an equal variety of utterances similarly intelligible to other members of our speech community....
> Some idea of the relative magnitudes of what we might call the productive as opposed to the reproductive components of any psycholinguistic theory is provided by statistical studies of language. A few numbers can reinforce the point. If you interrupt a speaker at some randomly chosen instant, there will be, on the average, about ten words that form grammatical and meaningful continuations. Often only one word is admissable and sometimes there are thousands, but on the average it works out to about ten. (If you think the estimate too low, I will not object; larger estimates strengthen the argument.) A simple English sentence can easily run to a length of twenty words, so elementary arithmetic tells us that there must be at least 10^{20} such sentences that a person who knows English must know how to deal with. Compare this productive potential with the 10^4 or 10^5 individual words we know—the reproductive component of our theory—and the discrepancy is dramatically illustrated. Putting it differently, it would take 100,000,000,000 centuries (one thousand times the estimated age of the earth) to utter all the admissible twenty-word sentences of English. Thus, the probability that you might have heard any particular twenty-word sentence before is negligible. Unless it is a cliche, every sentence must come to you as a novel combination

> of morphemes. Yet you can interpret it at once if you know the English language.(18)

Keen interest of American linguists in the inner working of language led necessarily to the rediscovery of the field of semantics (semantics=study of meaning), a discipline which is closely interwoven with syntax. Studies in generative grammar as well as most recent works on generative semantics attracted the attention of philosophers who turned to linguists in their quest to find new answers to intriguing questions that have beset philosophers at all times. In many cases the interest of the philosopher and linguist meet and an exchange of knowledge and ideas is benefitting to both. In passing it should be noted that scholars working in the field of anthropology and sociology have become extremely interested in the activities of modern linguists. It might be of interest to many a teacher to hear that those psychologists, not in agreement with the behaviorist theory that the principle underlying all human learning processes is patterned behavior, have turned to linguists who have begun to search for an explanation for the established fact that a speaker is able, theoretically at least, to produce an infinite number of correct sentences in his language. Since studies focusing on certain activities of the human mind can possibly give an answer to questions of this type and ultimately to the more fascinating question of how the human mind works, psychologists have been directing a great amount of their research towards mental activities that have to do with language. Special attention was given to the question of how a child acquires his native language. Since this type of research is especially thought-provoking and informative and may in the long run help to provide some new answers to the question of how languages other than one's native language are acquired, we quote again from articles written by psycholinguists. In the first quotation some astonishing facts about children's mastering their native language are presented.

> The most striking changes occur from here on, of course, at least as far as readily observed behavior is concerned. The buildup of a vocabulary starts during the second year of life....

> As already indicated, the naming explosion itself is one among a number of major developments that proceed spontaneously and at about the same time. The child is also learning the rules for forming questions, negations, past tenses, plurals, and so on. Indeed his progress is so rapid that investigators have difficulty keeping track of it or isolating any single change for detailed analysis. By the age of four the child has managed to master the essentials of his native tongue, the complexity of his utterances being roughly equivalent to that of coloquial adult speech.(19)

In the following quotation an attempt is made to shed some light on the intriguing question about this obviously enormous capability of children in learning languages.

> Let us consider the obvious fact that in just that case where the most successful language learning takes place—namely, in the child—the linguistic material displayed to the learner is not selected in the interest of presenting discrete grammatical skills in an orderly fashion. On the contrary, the child is exposed to an extensive variety and range of utterances selected for their situational appropriateness at the moment, rather than to illustrate a particular grammatical principle. The child proceeds in an incredibly short time to induce a grammar of the language far more complex than any yet formulated by any linguist. We must, therefore, assume that the child is somehow capable of making an enormous contribution of his own. We may call this contribution his language learning ability, by which we mean simply whatever it is that makes it possible for a child to observe a number of particular acts of speech in context and then to perform new acts of speech that will seem to the observer to imply that the child has formed general rules for producing intelligent, appropriate speech. It is still unknown what neurological mechanisms account for his linguistic accomplishment; but the fact that the child can produce new intelligent speech after observing only particular language acts of varied linguistic structure in contextual wholes seems indisputable. This capability, among other things, accomplishes what it is assumed the course writer tries to accomplish for the adult learner: it organizes and stores a wealth of structurally diverse input language data in such a way as to be available for future language use in thinking, speaking, hearing, reading and writing.(20)

No "method" of foreign language teaching has as yet been developed based on the above mentioned quite provocative insights and theories concerning language and language acquisition. Linguists and

psychologists occupied with this type of studies are far from suggesting any basically new approach to the old problem of language teaching, but they do not fail to point out that recent findings in modern linguistics and related disciplines do offer a wealth of very useful ideas and insights as well as language materials that the informed teacher might well build into his adopted teaching approach, thereby making his teaching job more meaningful to himself and more attractive to his students, especially to students at the college level. This idea was expressed by Chomsky in a paper which was read at the November 1965 convention of the National Council of American Teachers of English. The final section of this paper will be given here in full.

> Finally, I would like to say just a word about the matter of the teaching of grammar in the schools. My impression is that grammar is generally taught as an essentially closed and finished system, and in a rather mechanical way. What is taught is a system of terminology, a set of techniques for diagraming sentences, and so on. I do not doubt that this has its function, that the student may have a way of talking about language and its properties. But it seems to me that a great opportunity is lost when the teaching of grammar is limited in this way. I think it is important for students to realize how little we know about the rules that determine the relation of sound and meaning in English, about the general properties of human language, about the matter of how the incredibly complex system of rules that constitutes a grammar is acquired or put to use.
>
> Few students are aware of the fact that in their normal, every day life they are constantly creating new linguistic structures that are immediately understood, despite their novelty, by those to whom they speak or write. They are never brought to the realization of how amazing an accomplishment this is, and of how limited is our comprehension of what makes it possible. Nor do they acquire any insight into the remarkable intricacy of the grammar that they use unconsciously, even insofar as this system is understood and can be explicitly presented. Consequently, they miss both the challenge and the accomplishments of the study of language. This seems to me a pity, because they are very real.
>
> Perhaps as the study of language returns gradually to the full scope and scale of its rich tradition, some way will be found to introduce students to the tantalizing problems that language has always posed for those who are puzzled by the mysteries of human intelligence.[21]

4.32 Grammar and the Chinese Language

It is a curious yet at the same time rather frustrating experience for a foreigner teaching languages in China to meet time and again students at the college level and even Chinese teachers of English who claim that the European languages with their very "complicated grammars" pose so many problems whereas the Chinese language does not since it "has no grammar". Of course, the term grammar is used for structural features like articles, declensional and conjugational endings in European languages that are not to be found in Chinese and make those languages look strange, outlandish, or even exotic to a native speaker of Chinese. Yet underlying this rather superficial use of the word grammar is a deeper problem: the lack of interest of the Chinese student in his own language. Injustice will be done to the students if no attempt is made to find an explanation for this deplorable fact. When students are asked whether their teachers in grammar school or in secondary school ever talked about the grammar of the Chinese language many of them will answer in the negative. This becomes understandable, when one follows up this theme by posing the question whether grammar books are used at all in Chinese schools. Of course not, since books, dealing effectively and sufficiently with Chinese grammar, do not exist. It is a paradox, at least from the point of view of Westerners, that the people of a country with the largest population on earth and with such a wonderful heritage should know less about their mother tongue than speakers of any European language know about theirs. Here we do not attempt to give an answer as to why this should be the case, but we think it useful to point to at least some of the disturbing problems which arise when Chinese students learn a foreign language.

First of all they have the feeling that the new language is so strange and so complicated for which no reasons are given or can be found. This creates disgust, especially when the teaching of the many rules of the new language is not geared by the teacher towards making them automatic or internalizing them in the learner as fast as possible. Then many students will ask themselves why so much

fuss should be made about the foreign language when it is not being made with Chinese. Similarly, lack of understanding of the structure of the student's native tongue will keep him from developing a keen interest in the inner working of the new language. The Chinese teacher, not being in a position to contrast his native language with the student's target langage, can be of little help to the student; he himself having gone through a language training similar to that of the student, will shy away from making necessary grammatical excursions, i. e. from going beyond grammatical rules as given in the textbook. Not sure of himself when it comes to rather complicated matters of syntax, the teacher, who had no training in English on a highly advanced level, will avoid having the students write composition-style exercises, let alone making them write free compositions. If he does make the student write or if the program he is following provides for writing exercises, the latter are normally set up in a way that they pose no big problems for him since they follow certain patterns that he is familiar with. But it is only in free writing or free speech that the most important aspect of language, namely its creative power, is revealed; and consequently it is by means of that type of exercise that the teacher could check on how far the student has really broken into the new language, how far he "knows" that language. High school teaching does not seem to provide for any English composition classes. A college student, after six or seven years of training in English, may be asked to write his first composition and fail badly because he still thinks (and writes) in terms of his own native language. His mistakes in producing English sentences will in most cases bring out those points where the structures of the two languages differ.[22]

Some areas of special difficulties for students learning English are: word order in English sentences (Chinese is a positional language), the use of the definite and the indefinite article in English (the Chinese language does not employ articles but uses other structure markers instead, especically demonstrative pronouns), pronoun reference, sentence connectors, the use of irregular verb forms (in Chinese there is only one form for each verb), the use of conjunctions

and prepositions, the use of aspect and tense. One of the most severe problems is time reference. Since the Chinese language uses mainly adverbs and prepositional phrases to express time relationships Chinese students are at a loss when having to use forms other than the present tense in English. They are bothered by the forms themselves and even more by the choice of tense in rather complex sentences or in a sequence of sentences, a decision that depends on the answer to the questions: who speaks, when does he speak, and where does he speak? In many question-and-answer practices most of these problems do not come out since the questions narrow the problems down to just a few. In small conversation exercises (whose value as a powerful learning tool is in no way minimized by our present considerations) often enough stereotyped expressions are used and difficult structural forms are simply avoided. We could list many other weaknesses which come to light only when the student is asked to use the language in truly creative writing and, of course, in connected speech, i. e. in discourse.

Weakness in grammar is not only the cause of many mistakes in writing and connected speech, it also is the reason why college students are only too often incapable of reading English texts aloud in a cohesive way and correct intonation. Students may have a most beautiful English pronunciation (as in fact, many have), they may also have been trained in basic intonational patterns, but when they come to connected reading they will hardly be understood. Intonation is closely interwoven with the structure of the sentence and since, as we have seen, there are practically no two sentences exactly alike in writing or connected speech, the intonational contour changes with practically each sentence. Therefore mastering just some basic intonational patterns will not do.

In a highly inflectional language like German where a sentence can be introduced by practically any phrase of the sentence, i. e., where word order does not by far play as important a role as a structural marker as it does in the Chinese sentence structure, discourse reading with the major intonational stress placed on the word or phrase signalling the new or additional information given

in the respective sentence, requires a tremendous amount of analytical power. For instance, if a noun with an accusative declensional ending occurring at the beginning of a German sentence, does not signal to the student the extraposition of the sentence object and the concomitant change in the basic sentence structure, he will misunderstand and consequently misread the whole sentence. Even if the student's pronunciation is excellent, he may not be understood at all. On the other hand, a student with a somewhat poor pronunciation but used to a rather sophisticated grammatical analysis will understand the sentence structure immediately, read a discourse with the correct intonation and be easily understood. It should be noted that in languages with stress-timed rhythm (rhythm in English and German is called stress-timed, in French and Spanish syllable-timed), the stressed syllables or words in the sentence carry the information that the hearer is to be given or expects; all the other syllables and words in the sentence of a normal discourse are merely redundant forms to which the hearer does not pay attention. What this suggests, then, is that much of the work and effort normally spent on pronunciation, especially on drilling sounds in isolation, should be reduced so as to gain more time for an introduction into the simple sentence structure of discourse.(23)

At the earliest stage of language training a dialogue or an easy piece of connected text offer an excellent chance to draw the student's attention to the remarkable combinatorial power he is given to work with. Support for this type of approach comes again from psycholinguists!

> A set of successive items in a typical structure drill normally have in common only their shared grammatical properties—not their relatedness to a given situation. On the other hand, the successive utterances in a normal discourse, say in a dialogue or a piece of connected text, rarely share the same grammatical structure, but nevertheless exhibit a highly structured situational or contextual cohesion....We are saying that a chunk of language is most effectively learned as a unit of form and use.(24)

Lack of analytical know-how in regard to grammar, mainly due to the peculiar background of the Chinese college student, is also to

be blamed for many a student's failure in comprehensive reading. Some of the above quotes from linguists and psycholinguists have shown what creative language is and how many problems are posed by connected sentences. Here we may raise the extremely serious question of how well our graduating students are formally prepared to approach foreign literature. If in this time of communication they are not able to read comprehensively and with relative ease literature in their future fields of concentration we have failed to quite an extent in our endeavours since we have failed to endow the student with that most precious gift of being able to keep abreast of developments in their respective fields. Students ignorant of foreign languages have no access to literature published in internationally renowned journals and books. They are hampered tremendously in their career and can hardly be said to be great assets to their country. This holds true not only for students concentrating on literature proper but just as well for students majoring in any other field of academic endeavour. Unless the study of language is given its proper place, i. e. the central place in the educational system of a country, there will scarcely be hope for such a country to catch up with modern international developments.

According to our analysis, neglect of the Chinese language, notably of the Chinese grammar, has had and still has grave consequences for the whole educational system in the Republic of China. We even dare to suggest that this neglect is one of the reasons for the young generation's indifference to things Chinese. In our days only the natural sciences and economic questions are considered worthy of attention. China herself does not seem to have very much to offer on this score right now, and students—having virtually no access to their cultural heritage clothed in a language they do not understand—turn to the natural sciences without knowing much about their historical development and about the rationale and philosophy behind them. What might change drastically this rather saddening situation would be a turn towards that great vehicle of Chinese culture that still exists and is very much alive, the Chinese language of today. This powerful instrument in the hand of every Chinese has a gram-

mar and a creative ability which is as rich and as beautiful as that of any other well known language. The search for linguistic universals has verified the creative aspect of all languages in the world.

> Every human group that anthropologists have studied has spoken a language. The language always has a lexicon and a grammar. The lexicon is not a haphazard collection of vocalisations, but is highly organized, it always has pronouns, means for dealing with time, space, and number, words to represent true and false, the basic concepts necessary for propositional logic. The grammar has distinguishable levels of structure, some phonological, some syntactic. The phonology always contains both vowels and consonants, and the phonemes can always be described in terms of distinctive features drawn from a limited set of possibilities. The syntax always specifies rules for grouping elements into phrases and sentences, rules governing normal intonation, rules for transforming some types of sentences into other types.
> The nature and importance of these common properties, called "linguistic universals", are only beginning to emerge as our knowledge of the world's languages grows more systematic.[25]

An understanding of the inner working of the Chinese language would not only bring about a radical change in the approach to foreign language learning and teaching in this country, it probably would also prepare for more accurate writing and, what could be the crowning of all efforts made in this direction, it might inspire creative thinking and writing, so desperately needed in a time where the great value of man and concern for man are in danger to be swept aside by expectations set in science and technology.

What is proposed here urgently, is the establishment of linguistically oriented centers in this country, where research should also be done on the present-day Chinese language. Specialists have to be trained who will dig into the Chinese grammar and then formulate its rules in a way teachers and students can understand. Only a modest beginning has been made so far.[26] It is hoped that in the near future linguists will be assigned to work in language departments and make their influence felt.

In short, a new approach to the Chinese language should be envisioned and developed which could make the study of language a

fascinating undertaking for the student while making him feel at home in his own language and culture.

4.4 Excursus on the Importance of Attitude in Foreign Language Learning and Teaching[27]

In the fifties and early sixties the so called "scientific approach" to language learning and teaching, based on behavioristic principles, distinguished by certain rigid techniques and methodological steps to be followed, had created the belief in many linguists and teachers that the problems of learning and teaching languages had been solved. A great wealth of learning materials was produced and a programmed teaching was advocated that would almost automatically lead the student to mastery in the new language by merely proceeding according to graded steps. Many teachers followed blindly the prescribed techniques and methodological steps in the expectation that somewhere along the road the promised miracle would happen. But in most cases this miracle did not happen. In many instances disappointment and frustration gradually replaced the initial excitement. What had gone wrong? The answer is quite simple: being completely taken in by this modern approach and being almost exclusively occupied with techniques and learning-teaching materials of all kinds, one simply forgot the most crucial factor in the process of language learning: the learner! Structural linguists and behavioristic psychologists had shyed away from looking into or at least observing the mental processes of the learner since that could not have been consistent with their objective or "scientific" approach to language. Some of the pitfalls of this blind belief in scientific methods were exemplified in our review of teaching methods in Taiwan. Psycholinguists, called upon the scene and inspired by the generative approach to grammar, have focused again the spotlight on the learning process and the attitude of the student. After all, the way he behaves in that complicated process will decide the success or failure of any efforts made. We have seen already that cognitive processes are scrutinized with special interest. Of more immediate interest for us here in China is the fact that greater emphasis is again placed on psychological-pedagogical considerations in the whole process of

learning and teaching, i. e. on the importance of attitudes and aptitudes, on personal variables, on individual interests, and on motivation.

To cut this potentially endless discussion short, we will only raise some questions especially relevant to the situation in China. We will first deal with the psychological concerns of the learner and then with those of the teacher.

4.41 The Student

Students at any stage in their educational process ought to be understood and recognized as persons with their own private sphere of thinking and feeling, in their individual network of inter-relationships according to their peculiar backgrounds, if their educational training is to lead to sound growth of their personalities and to success in their respective fields of academic endeavour. This holds probably more true for students of languages than for students in any other discipline since languages may be said to be the most revealing aspect of man's communicative and social activities.

The language of a person gives away part of his innermost feeling, even if he handles his own language skillfully enough to keep his intimate thoughts to himself. The student struggling with a foreign language is at an even much greater loss when it comes to hide his feelings. He feels he is in constant danger of speaking and acting foolishly, and thus lose face.

Thus the high school and college student who only stumbles over bits of the new language and is never able to express his ideas adequately in the new language, will naturally develop an antipathy against this type of learning since it has become for him a constant source of loss of face.—If this view is correct, then an approach to language learning should be devised that can help the students to get a good hold on the new language as quickly as possible, enabling them to feel at home in the new language, i. e. expressing their ideas adequately in the target language.

Further questions on factors influencing the attitude of the student: Does the student, especially the high school student, know the objectives of his learning a new language? Is he learning only to please the teacher or pass the Joint College Entrance Examination?

How does the student get along with his classmates, with his teacher? Does he have problems at home that influence his attitude toward his classwork? Are the language materials used, the teaching methods applied geared to the student's particular age and interests? Are the learning materials presented in a way that could create excitement in the student?

Questions of the type asked so far are of even greater relevance with regard to the student in college who is quite concerned about his education and his future. He has to struggle with additional problems. He may have tried to get into one of the high-ranking schools but did not make it, and now he is a student of a language that he never really was interested in and maybe had no prior knowledge of, a student in the language department of a school he originally did not care to attend. What will his attitude be when he first walks into the classroom? Will this attitude change if the kind of training used does not immediately lead to success, does not show him how interesting, revealing, and informative a foreign language study could become? Could the teaching techniques and methods that tired him out during his six long years in high school still be used? All these and many more questions should be asked by all people concerned with giving a good education to our students: parents, school administrators, people in charge of language laboratories, department heads, and especially the teachers.

4.42 The Teacher

According to our view of foreign language learning the teacher is most instrumental in the formation of the student. He can become the key to success, he may also be to a large extent responsible for the failure of his student. Of course, a similar view may be had with regard to other academic fields, but it should be noted nevertheless that the foreign language student has to rely on his teacher much more than a student of any other branch. The student who begins to learn a new language cannot be really on his own for some time. He cannot yet read books in his field, he cannot yet follow lectures offered in the new language. The classwork, done with and under the guidance of the teacher, is most crucial for him, at least

during the beginning.

The concerned teacher will always be alert and raise questions like: do I know all my students? Individually? Am I familiar with the individual student's strong and weak points? What do I know about his family and social background? Do I know the students' names so as to be able to call on all of them and let them know that I am interested in every one of them? Do I have the patience to wait for a student's answer in class even if that may take quite a while at times? This patience may pay off in the long run in that the student—having been given the chance to produce something—will have gained in self-confidence which is crucial to his whole approach to language learning. Many students complain that their teachers have no patience. If the students do not answer right away or answer wrongly, the teacher either gets angry or gives the answer himself. The danger is that the impatient teacher will gradually give up making them use the new language creatively. He will end up in a monologue which, of course, will prove disastrous to his students. Am I convinced that the best approach to teaching foreign languages is to always ask the question: What will help my students best, at this stage of their training, with regard to their typical problems? A teacher deeply concerned about the formation of his students will know by experience that his interest in the growth of the students, that his being engaged fully in the daily exchange, the give-and-take with his students, will by far overshadow any of the so-called teaching methods. The latter will be seen in the right perspective, as teaching aids. Of course, a professionally well trained teacher will know that he must be informed on what is going on in the world of teaching foreign languages, he must keep abreast of developments in the methology of his field, but he also will be convinced that the students should be offered only the very best available, that his approach to applying teaching methods and respective techniques should be eclectic, always relevant to this particular student in this particular teaching situation.

The teacher, set at making the student's endeavours meaningful and successful, will hardly ever fail to find a word of encouragement

for the student. He will sympathize with the student failing in his efforts, he will show his joy at the moment of success. He will rejoice when the student begins to use the new language creatively, when the latter takes his first steps on a road that leads to great discoveries, that will open up new horizons for him. He will let his student know about his own real creations and encourage him to exploit his creative power more and more in the pursuit of adventures in the new language.

It goes without saying that a normal student will respond positively to a concerned teacher of the type just described. He, in his turn, will show an attitude that encourages the teacher to continue his efforts. Soon it will become obvious that there is mutual understanding and trust which may lead to a situation where the student begins to play an extremely constructive and for the teacher rewarding role in the process of his formation. A host of ideas and suggestions, coming either from the teacher or the student, will enliven the course-work and make this cooperation a fascinating experience for both. What started out as a very difficult and psychologically almost impossible undertaking has been turned into a most pleasant common exploration of man in this world. How was that possible? Because the teacher took his student seriously, respected him as an individual, recognized and took into consideration the great potentialities that lie hidden in him; it was possible because he always placed his concern for man, for this young human being, high above any other consideration.

We are realistic enongh to concede that great dedication to his job is needed if the teacher is to succeed in the way outlined above. But much more is needed, conditions of various kinds have to be met. A teacher who works in several schools (possibly teaching a host of different classes) and spends quite an amount of his precious time shuttling between these schools will probably never have a real chance to know the students well. He again may not have the chance to teach his students over a longer period of time since he is assigned new classes every year. Genuine growth of the student under the guidance of this teacher is virtually impossible. Students who are

often assigned new teachers may become utterly confused and disappointed since the process of becoming familiar with the teacher and his approach to language teaching has to be repeated again each time, and once they feel at ease with a teacher he may be assigned other classes. A famous or rather infamous example of this most questionable approach to language teaching are the freshman-English teachers all over the country. The teacher who is assigned two freshman conversation classes per week and that in many departments will very soon feel at a loss and frustrated when he tries to come into close contact with as many students as possible, when trying to get things moving.

The question of salaries is of the greatest importance here. Teachers who are constantly worried about making a living for themselves and their family can hardly be expected to have enough energy and interest left to put their hearts fully into their teaching. Connected with this problem is that of full-time teachers. Then there are administrative problems in schools and departments. Some of them may be hard to solve at times. But here the all important question should constantly be on the minds of all people concerned: why are we running schools and departments at all? If it is not for the students, for their growth and formation, most of our efforts, of our expenses will be wasted; in fact, we may cause the gap between the old and young generation to become wider. But if this very basic principle is observed many ways will be found to prepare the ground for excellent learning conditions and teaching approaches. In a language department where the teachers work together and know about the objectives of the department, new methods for improving the language learning and teaching situation could be tried out. Students of the upper classes who already handle the new language rather well could be employed as teachers in the freshman course (which has been practiced!), possibly attaining several goals at the same time: offer the advanced students a wonderful chance to creatively use the new language; providing the freshman students with a lot of individual practice; and create an atmosphere of mutual interest and friendship among the students within a language de-

partment.

It is hoped that in future discussions on revising language curricula and language programs these and related problems will be taken into due consideration thereby helping create an educational atmosphere in which the learning and teaching of language could become an exhilarant and fascinating experience for both the student and his teacher.

5. CONCLUSION

Language is the principal means of communication for man. We are surrounded by language during all our lives. We use language for all kinds of social activities. Language plays a dominant role in education, especially in our time, when gigantic efforts are being made to educate entire nations to literacy, when at least one declared goal of education consists in training people for more accurate thinking and for scientific work. And yet, we only too often take language for granted, we fail to see the need for taking a closer look at this ever needed and ever present tool of man; we fail to ask: what is language, how is it constructed, how does it function, how is it acquired, and how does it serve man in the various fields of human endeavours?

In our time disciplines like natural sciences, technology, economics, and commerce are commonly considered to be of greatest importance for progress, development, good relations within a country and even internationally. We do not question all this, yet at the same time we cannot but express our deep concern that the importance of the study of language in general, the learning and teaching of foreign languages in particular, are dangerously underrated, much to the detriment of a renewal of Chinese cultural life as also to progress in scientific disciplines. In any educational reform the study of the Chinese language and especially the study of foreign languages should be assigned their proper place.

In summing up this paper we would like to make the following remarks and suggestions:

Reforms of language programs in high schools and colleges and

revisions of foreign language department curricula are needed. Language-centered curricula should be envisioned in which grammar, composition, and literature are no longer considered irreconcilable foes but rather various aspects and illustrations of that beautiful and most creative gift of man: language. Active use of the language, i. e. mastery of the four language skills should be the first declared goal of every language department; reading comprehension, especially in English, should be set as a long-range objective for every college student that would enable him to keep up with international literature in his respective field.

The quality of the foreign language teacher, especially in secondary schools, must be raised considerably. There should be higher salaries to make that job more attractive financially, there must in general be better preparation to make teaching more effective. Teachers must be provided with opportunities for retraining, they must be informed about important events and very useful literature in their field.—College students, determined to become language teachers, should be given a thorough training in the new language as well as in methodology. These prospective future teachers could become most instrumental for setting higher standards in foreign language teaching at the secondary level.

The rehabilitation of the Chinese language is called for. Since virtually no studies on the present-day grammar of Chinese are readily available, special efforts should be made in this direction. Foreigners coming to China in order to learn Chinese complain that their teachers do not know how to explain the Chinese grammar to them; Chinese students studying abroad will largely fail for the same reason when offered a teaching job; college students writing compositions in a foreign language often enough simply carry over grammatical elements of their native language into the new language without even realizing it. Students' compositions are often distorted because of lack of accurate thinking, a type of deficiency that could have been avoided through some formal training in Chinese grammar. A grammar of Chinese should be worked out and made available to teachers and students at all levels.

There is a *desperate need for linguists* in this country, i.e. for people who are experts in the formal study of language; who specialize in the analysis and comparison of languages; who could provide deeper insight into and thus stimulate greater interest in the complexities and beauty of language; who are in a position to advise teachers with regard to methods, techniques, and teaching materials; who could turn the attention of teachers to readily available literature in their field.—Linguistically orientated language centers or schools, preferably colleges of Languages and Linguistics, should be established where future language teachers could be prepared (through theoretical and practical training), where qualifying students could undergo linguistic training, where contact could be sought and established with similar centers or schools in the United States and in Europe as a means to keep this country informed on international developments in the study of language and its related fields.

As we are writing this conclusion we are informed that the Ministry of Education is strongly advocating a thorough review of the whole educational system in this country and ready to bring about all changes necessary to meet the needs of our time. It is hoped that this paper will contribute to the discussion going on and help to provide for an up-to-date system of education in general and for an effective approach to the learning and teaching of language in particular.

NOTES

(1) DeCamp, David, "The Training of English Teachers in the Far East. The University of Texas Program in Taiwan," *Language Learning*, vol. 15 (1965), pp. 119-127.

(2) Ibid. p. 120.

(3) Rivers, Wilga M., *Teaching Foreign Language Skills.* Chicago: The University of Chicago Press, 1968, Rivers voices at various places the same idea, see. e.g. on p. 244, I may add here that, as far as I am familiar with literature of methodology of foreign language learning and teaching, the book referred to here is by far the best available at present and I venture to say that it could be an extremely useful guide for any foreign language teacher because of its many practical suggestions and its balanced views on techniques and teaching methods.

(4) Moser, Hugo, "Sprachnorm und Sprachwandel: Ihr Spannungsverhältnis

im Heutigen Deutsch," in Manfred Triesch, ed., *Probleme des Deutschen als Fremdsprache.* München: Max Huber Verlag, 1969, pp. 33-46.

(5) Newspaper reading plays by now an important role in the sophomore, junior, and senior years of the German Department at Fu Jen University. An appeal to the publishers of some major German newspapers and weeklies to help the cause of our students has been extraordinarily successful.

(6) Rivers, Wilga M., op. cit., pp. 8-9.

(7) DeCamp, David, op. cit., p. 122.

(8) Gleason Jr., H. A., *Linguistics and English Grammar.* New York: Holt, Rinehart and Winston, Inc., 1965, p. 479f.

(9) Rivers, Wilga M., op. cit., p. 15f.

(10) Lado, Robert, *Language Teaching.* New York: McGraw-Hill, Inc., 1964. See the brief description of language teaching methods.

(11) Ibid. See subtitle of R. Lado's book: A scientific Approach.

(12) Many students will be helped by the introduction and prudent use of visual aids. Fu Jen University has a well organized visual aids section that all teachers and students of foreign languages have access to. For a discussion of visual aids see the respective chapter in R. Lado, op. cit., pp. 194-203.

(13) Rivers, Wilga M., *The Psychologist and the Foreign Language Teacher.* Chicago: The University of Chicago Press, 1964, p. 105f.

(14) See Lado on "Establishing a Linguistic Beachhead," op. cit., pp. 61-69.

(15) The Journal *Language Learning* provides the interested reader with a wealth of articles discussing the rationale behind and the appropriate use of dialogues. See also Rivers' excellent treatment of the use of dialogues in *Teaching Foreign Language Skills*, op. cit., pp. 167-188.

(16) Chomsky, Noam, *Syntactic Structures*, s-Gravenhage: Mouton and Company, 1957.

(17) Chomsky, Noam, *Aspects of the Theory of Syntax.* Cambridge: The M. I. T. Press, 1965, p. 6. For an application of the transformational theory to foreign language teaching see e. g. Lutz Götze, "Zur Applikation moderner linguistischer Theorien im Fremdsprachenunterricht," in *Zielsprache Deutsch*, Heft 3 (1971), pp. 105-117.

(18) Miller, George, "The Psycholinguists," in Mark Lester, ed., *Readings in Transformational Grammar.* Holt, Rinehart and Winston, Inc., 1970, p. 30.

(19) Lenneberg, Eric H., "The Biological Foundations of Language," in Mark Lester, op. cit., p. 7.

(20) Newmark, Leonard and Reibel, David A., "Necessity and Sufficiency in Language Learning," in Mark Lester, op. cit., p. 236f.

(21) Chomsky, Noam, "The Current Scene in Linguistics: Present Directions," *English Teaching Forum*, Vol. V (1967), p. 9.

(22) At present a contrastive study of basic Chinese and German syntactic structures is under way at Fu Jen University.

(23) This could be of great help to students who are "poor" in pronunciation but might be very strong in dealing with grammar at an advanced stage. See also Wilga M. Rivers, *The Psychologist and the Foreign Language Teacher*, op. cit., pp. 112-114.

(24) Newmark, Leonard and Reibel, David A., op. cit., p. 238. See also the very interesting and revealing chapter "How little Sentences Grow into Big Ones," written by Kellog W. Hunt, in Mark Lester, op. cit., pp. 170-186.
(25) Miller, George, op. cit., p. 32.
(26) A so called "Graduate School of Linguistics" exists so far only at Fu Jen University. The Taiwan Normal University has a linguistic section in its Graduate Division of the Foreign Language and Literature Department. The National Taiwan University is preparing for the establishment of a linguistic school.
(27) See also Smith, Alfred N., "The Importance of Attitude in Foreign Language Learning," *English Teaching Forum*, Vol. X (1972), pp. 15-20.

臺灣大專院校的外語教學

ARNOLD SPRENGER, SVD.

這篇文章是作者對於國內教育改革，而提出他個人的看法和意見。此篇文章主要是談論大學的外語教學，但也兼述了大專院校以外的外語教學情形。目前在臺灣，大家對於外語教學非常注重。學習語言的方法和目標也廣泛地受到討論，並且也做了許多改進的議案。這篇報告是根據他自1965年以來的教學經驗和親身對於整個教育概況的了解而寫成的。作者本人認爲多次的與老師學生們討論及研究，使他獲益不淺。

在此篇文章的開端，作者指出大學不能造就有外語能力的學生，並且學生所學的東西，不能適合日後工作的需求。中學的英語教學，在許多方面也令人不滿意。中學老師大都缺少職前的準備。他們經常是從畢業生中聘任的。而他們所受的英語訓練，實際上幾乎僅止於高中。在大學一年級的時候，莘莘學子，聚集一堂，水準有所差異，教學自然要有不同。要英文系的新生，一開始就研究文學，未免言之過早，因爲他們的英語程度是否能够如此做，實在是一個問題。但是眞正重要的問題是要有一套適合學生日後需求的課程與教學計劃。大一、大二時期對於英文的訓練來說是最具有關鍵性的。我們應該擬定一套基於學生們英語能力及長處、短處的教學計劃，而給予大一新生一項有意義，特殊而積極的教學。

英文系以外的其他外文各系，學生要在進入大學以後才開始學習該語文。在此；作者就針對著德文，法文兩系的舊制教學課程，提出他認爲不完善的幾點意見。（一）必修課太多；（二）課程分配不妥當；（三）英文不被重視；（四）

沒有輔修。爲了彌補舊制課程的缺點，自一九七一年起，新的教學方案已經在輔仁大學德文，法文，西文各系積極推行了。至目前爲止，成效甚爲顯著。同時也由於這方案的進行，也從其中獲得了許多寶貴的經驗，而更能解決許多語言教學上棘手的問題。

於是外語教學的目標是什麼？學生是否能够將所學的語言應用出來？是否課程及教學方法能够達到所學所用的目標？這一連串的問題應該溯源於語言的教學法是否應用適當。目前主要有兩種語言教學法廣泛地被採用，（一）文法翻譯教學法。（二）視聽教學法。前者完全注重文法規則的學習和文章的翻譯，故學生學習領域多少受到限制。所以受前一類教學法的學生，即使他多年的研習該語文，仍然不能應用出來。而第二類教學法過份注重口語會話能力，其弊在於學生不能對該語文有更深的了解，文法結構都不曉得何物，要他們正確撰寫和研讀有深度的文章是極困難的。

爲什麼深入地瞭解學習文法是那麼重要呢？因爲一種語言的文法，可顯出該語言的創造性。如果該語言的文法能够深植在學生內，那麼學生就可以創造許多新的，正確的句子。在另一方面，學生的母語文法解析及練習，對於學習外國語言也極有助益。在語言學習中，最重要的莫過於學生們在學習過程中的反應和老師的教學方法。但一般所謂的「科學方法」，則失之於忽視學生的能力及反應，也沒有做得很成功。事實上；學生是俱有極大的能力來學習新的語言，他們的潛力更需要有人來啓迪和善與引導。教師們應與學生有充份的了解，知道他們的困難，然後才能採取適當的教學方法。

在這篇報告的末端，作者提出下列五點意見：（一）中學與大專的外語教學應該改革。（二）大學裏外文各系的課程也有修正的必要。（三）外語師資，尤其是中學教師的水準，應該加强。（四）國語的文法應該即刻寫成，並且在各級學校教授。（五）培養及儲備語言學教育人才。同時；也應設立語言研究機構，以便收集資料，研究語言學的新理論，更重要的是研究發展建立在那些理論上的教學方法。

SOME OBSERVATIONS ON CHINESE AND ENGLISH BILINGUAL LEXICOGRAPHY

JAMES E. IANNUCCI

In some respects the compilation of an efficient bilingual dictionary is a much more demanding and complicated task than the compilation of a monolingual dictionary. A monolingual dictionary deals with the facts of one language and addresses itself to the native speakers of that same language. On the other hand, a bilingual dictionary must deal with the facts of two languages, and it must equate and relate these facts in various ways. It can address itself to the native speakers of only one of the languages, but it can, and sometimes does, address itself to the native speakers of both languages. In any case, one of the languages of a bilingual dictionary is normally a foreign language to its user. The compiler of a bilingual dictionary must have a clear understanding of: 1) the kinds of information which are required, 2) for each kind of information whether it is required by the speakers of X-language or Y-language, 3) in which of the two languages explanatory matter should be provided. Failure in any of the above considerations may result in loss of efficiency, or, in cases where unneeded information is given, wastefulness of space. A bilingual dictionary which addresses itself to the native speakers of only one of the languages has, of course, a much simpler task, but even such dictionaries often fail to observe basic requirements.

Avoiding for the moment such abstractions as source language and target language, or X-language and Y-language, if we limit ourselves to Chinese and English, and put the matter in its simplest and most concrete terms, a bilingual dictionary involving Chinese and English can be expected to fulfill the following requirements:

A. To provide the speaker of Chinese with the meaning of a word or expression that he hears or reads in English.

B. To provide the speaker of Chinese with the means of saying

or writing in English something which he has formulated in Chinese.

C. To provide the speaker of English with the meaning of a word or expression that he hears or reads in Chinese.

D. To provide the speaker of English with the means of saying or writing in Chinese something which he has formulated in English.

These four requirements assume that the dictionary addresses itself to the native speakers of both languages and that it is bidirectional. These requirements may be classified according as they are user oriented or function oriented. A and B obviously serve the speaker of Chinese, while C and D serve the speaker of English. From the point of view of function, A and C serve what can be called the "understanding function," while B and D serve what can be called the "expression function." Thus, a Chinese-English dictionary serves the understanding function for the native speaker of English, and it serves the expression function for the native speaker of Chinese. Conversely, an English-Chinese dictionary serves the understanding function for the native speaker of Chinese, and it serves the expression function for the native speaker of English.

We can now put this in more general terms and say that any entry in a bilingual dictionary serves the source-language speaker in the expression function and the target-language speaker in the understanding function. (By source language is meant the language of the entry word. By target language is meant the language of the glosses or translations in the body of the entry.)

An examination of some thirty bilingual dictionaries of Indo-European languages revealed that these dictionaries do not distinguish understanding function from expression function very clearly[1]. The examination further revealed that these dictionaries were primarily concerned with the understanding function, and scarcely if at all with the expression function. It is interesting to find that a similar situation obtains in Chinese and English bilingual lexicography.

1 Iannucci, James E. "Meaning Discrimination in Bilingual Dictionaries," *The Modern Language Journal*, Vol. XLI, No. 6, October, 1957, pp 272-281.

There is a tacit and unquestioned assumption that English-Chinese dictionaries are intended exclusively for Chinese students of English and that Chinese-English dictionaries are intended exclusively for English-speaking students of Chinese. Chinese students of English seldom have recourse to a Chinese-English dictionary when they are faced with the problem of expressing something in English for which they do not happen to know some lexical item. Instead they prefer to make guesses which they then check in an English-Chinese dictionary. When asked what they do if this approach fails, they say that they "ask someone." If anything this situation is even more acute in Chinese and English bilingual dictionaries than in the bilingual dictionaries of Indo-European languages referred to above. While there are some few exceptions, the following generalizations can be made regarding the field of Chinese and English bilingual lexicography: English-Chinese dictionaries are usually intended exclusively for the Chinese user. They are in general compiled by Chinese lexicographers. Introductions, prefaces and all other explanatory matter are all in Chinese. Chinese characters are printed too small for the convenience of an English-speaking user. Pronunciation of the Chinese is not provided. Chinese-English dictionaries, on the other hand, are in general compiled by British or American lexicographers, and they are usually intended for the English-speaking user. Introductions, prefaces and all other explanatory matter are all in English. Chinese entry words are given in one or another of the several systems of romanized spelling, and the serial order is alphabetical. This is certainly not the form nor the arrangement most convenient for a Chinese user. Thus, both English-Chinese dictionaries and Chinese-English dictionaries are in general concerned exclusively with the understanding function. There are exceptions. The *Mathews Chinese-English Dictionary*, for example, has an English index. This index merely lists English words with number references to the places where they occur in the body of the Chinese-English Dictionary. This is not a full-fledged English-Chinese Dictionary, but it is intended to serve the English-speaking user in the expression function. A similar index is found in 綜合英華華英大辭典 (*A New*

Comprehensive English-Chinese Chinese-English Dictionary.) The name notwithstanding, the Chinese-English part is not a bilingual dictionary but an index of Chinese words with number references to the place where these Chinese words occur in the body of the English-Chinese Dictionary. This index is presumably intended to serve the Chinese user in the expression function. Such indexes can scarcely be considered authentic dictionaries, much less adequate bilingual dictionaries for the expression function. They do, however, represent very limited gestures in the direction of serving the expression function. Among the exceptional dictionaries constructed expressly to serve the expression function, we must mention the *Hillier English-Chinese Dictionary of Peking Colloquial*, now out of date, and the more modern *Yale Dictionary of Spoken Chinese* (the English-Chinese part.) These dictionaries are both constructed to serve the English-speaking user in the expression function. I am not acquainted with any Chinese-English dictionary designed expressly to serve the Chinese user in the expression function. There is a need for good dictionaries of this type.

This almost exclusive concern with the understanding function and general neglect of the expression function in bilingual dictionaries is no doubt a reflection of our traditional academic approach to the teaching of foreign languages, an approach which emphasized reading for comprehension and scarcely conceived of any other possible goal in foreign-language education. Modern foreign-language text books and classroom techniques, not to speak of the foreign-language laboratory, all tend more and more to emphasize the spoken language and to give much more importance to expression in the foreign language. Bilingual dictionaries lag far behind in this development.

Since the concern of bilingual lexicography has been almost exclusively with the understanding function, it is not surprising that bilingual dictionaries are in general not adequately constructed to serve the expression function. A bilingual dictionary designed to serve the expression function will obviously have different requirements from the requirements of a dictionary designed to serve the

understanding function alone. The difference in requirements is perhaps most critically revealed in the handling of sense discriminations of polysemous entries.

Avoiding generalization and abstractions again for the time being, perhaps the best way to illustrate the requirements of sense discrimination is to take a possible entry in an English-Chinese dictionary and to examine how this entry might be used, first by a native speaker of Chinese and then by a native speaker of English. The English noun *spring* can serve as an illustration. The following is away of treating this entry in an English-Chinese dictionary:

Spring [sprɪŋ] *n.* 1. 跳躍 2. 彈簧，發條 3. 彈性 4. 春季 5. 泉 6. 起源 7. 動機

Such an entry would serve the Chinese-speaking user in the understanding function. He has found the word *spring* in a context, spoken or written, and does not know its meaning. Words usually occur in rather exstensive linguistic contexts, sometimes accompanied by situational contexts, but even a limited immediate context is often enough to determine the sense of a polysemous word. The following are examples of some immediate contexts in which the noun *spring* might occur:

a) This watch needs a new spring.
b) Flowers bloom in the spring.
c) It is sometimes difficult to understand the springs of human actions.
d) The tiger reached the man with one spring.
e) The old man's knees have lost their spring.
f) The cool water of the spring quenched his thirst.
g) The springs of these beliefs must be sought in ancient mythology.

Assuming that he understands the rest of the sentence, a Chinese user should have no difficulty in selecting the correct Chinese translation for the word *spring* in each of the above sentences.

Let us now observe how an English-speaking user would use the above entry. This entry would serve him in the expression function. He has in mind a particular sense of the word *spring* and needs the

Chinese translation for that sense. The above treatment is clearly inadequate for his purpose. He needs some help in selecting the correct Chinese translation for the particular sense of the word *spring* that he requires. This help can be provided in the form of sense discriminations. These discriminations should be as brief as possible to save space and should, of course, be in English. Since the English-speaking user may need the spoken word, the pronunciation of the Chinese translations should be provided. Thus, if we modify the above treatment of the noun *spring* to make it more adequate for the English-speaking user, it might look something like this:

> **Spring**, [sprɪŋ] *n.* 1. (leap) 跳躍 [tyàuyàu] 2. (mechanical device) 彈簧 [tánhwáng], 發條 [fàtyáu] 3. (elastic quality) 彈性 [tánsyìng] 4. (season) 春季 [chwūnjì] 5. (water) 泉 [chywán] 6. (origin) 起源 [chǐyuǎn] 7. (cause) 動機 (dùngjī]

From the above we can make the following generalizations: 1) If a bilingual dictionary is to serve the understanding function alone, sense discriminations may be omitted entirely without any loss of efficiency. (This is an important fact if economy of space is a consideration.) 2) If a bilingual dictionary is to serve the expression function, sense discriminations should be given for each of the translations of a polysemous entry. (Again economy would dictate that these discriminations be as brief as possible.) 3) Sense discriminations should be in the source language since it is the source-language speaker who uses the entry in the expression function.

One type of bilingual dictionary deserves special attention in view of the guidelines developed above. It is what might be called the "bilingualized monolingual dictionary." There are several English-Chinese dictionaries of this type. They are simply copied monolingual English dictionaries with Chinese glosses or translations inserted after each English definition. Thus, they are two dictionaries in one: a monolingual English dictionary and a bilingual English-Chinese dictionary. In the bilingual function the English definitions can serve as sense discriminations. According to the above guidelines these discriminations would be useful to the English-speaking user

only. But these dictionaries are compiled by Chinese lexicographers and intended for the Chinese user. Since these dictionaries can serve the Chinese user only in the understanding function, and since, as we have seen above, the understanding function does not require sense discriminations, all these English definitions, usually long, formal ones, are entirely superfluous. This statement is made from the point of view of efficiency in a bilingual dictionary in its proper function. It may be argued that, after acquiring a certain level of proficiency, a student of a foreign language may profitably use a monolingual dictionary of that language as well as a bilingual one. While this is true, there does not seem to be any particular advantage in having the two dictionaries interlaced with each other if the two parts do not serve each other in any systematic or meaningful way.

If, however, we look at these English-Chinese dictionaries from the point of view of the English-speaking user, the picture changes considerably. The English definitions then serve as sense discriminations for polysemous entries and consequently have a systematic or meaningful bilingual function. These dictionaries would serve the English-speaking user in the expression function which, as we have seen above, requires sense discriminations. The sense discriminations are in the right language, namely, the source language. Thus, as bilingual dictionaries, these English-Chinese dictionaries would seem to have greater possibilites for the English speaking user in the expression function. Yet they are clearly intended for the Chinese user. For the English-speaking user they have certain defects which possibly could be corrected. The Chinese is printed too small and no Chinese pronunciation is provided.

The idea of the bilingualized monolingual dictionary is an ingenious one and holds excellent possibilities for the design of more efficient expression bilingual dictionaries. Certain improvements are needed. For example, the definitions one finds in monolingual dictionaries, particulary the larger ones, are usually too long and formal to serve as sense discrimination. The 國際英漢大辭典 based on *Webster's International English Dictionary, Second Edition,* for example, gives the following definition for one sense of the noun *spring:*

b Season of the year when plants begin to vegetate, usually including March, April, and May in the north temperate zone, (乙) 春季 (一年中植物萌芽之時期，在北溫帶中，大概爲陽曆三月四月及五月)，*Spring*, of the astronomical year, begins with the vernal equinox and ends with the summer solstice, 天文年之春季係始於春分而終於夏至。

This is much too cumbersome and space consuming for the requirements of a bilingual dictionary. To make matters worse, long, formal Chinese translations of the English definitions are added. As a definition for the same sense of *spring*, the much smaller 簡明英漢辭典 based on *The American Vest Pocket Dictionary* (Random House) gives simply "first season." This is much more adequate as a sense discrimination. As a matter of fact, strictly for purposes of discriminating senses in a bilingual dictionary, it could be reduced further to simply "season" without any loss of efficiency.

Thus, the smaller monolingual dictionaries seem to be better candidates for bilingualization simply because their definitions are briefer. The terse definitions, often simply synonyms, of *The American Vest Pocket Dictionary* make this dictionary eminently suitable for bilingualization. The treatment of the entry word *match* in the bilingualized version is reproduced here as an example:

match, *n.* 1. short stick of wood or paper chemically tipped to strike fire. 2. person or thing resembling another exactly. 3. game. 4. marriage. —*v.* 5. equal. 6. fit together. —match′less, *adj.* —match′maker. *n.*
图 1. 火柴。 2. 酷肖的人或物。 3. 競賽。 4. 婚姻。—圖 5. 平等的。 6. 相配。

With the addition of Chinese pronunciation this would be a very adequate treatment for the English-speaking user in the expression function. The English definitions would pinpoint the sense of the word *match* that the user has in mind, and he would find the appropriate Chinese translation for that sense under the same number below. (This dictionary seems to me to have a better arrangement than other dictionaries of this type for the bilingualized part. Putting

the bilingualized part after the entire English entry gives the treatment a more orderly and less cluttered appearance.) At the same time the entry is quite suitable for the Chinese user in the understanding function. The Chinese user would skip the English definitions, since he does not need them, and go directly to the Chinese translations. The unmodified version of this dictionary treats *matchless* and *matchmaker* as run-ons and gives no definitions for these words. While the treatment of some derivatives and compounds as run-ons can be justified in a monolingual dictionary under the assumption that the user can gather their meanings from the rest of the entry, a bilingualized version should not omit translations of these run-ons.

To my knowledge such bilingualized monolingual dictionaries exist only in the English-Chinese field. This lexicographical procedure is worth exploring for other fields. For example, I am not acquainted with any bilingualized monolingual Chinese dictionary. Such a dictionary would serve the Chinese user in the expression function. No doubt many problems would have to be solved, not only methodological and procedural, but perhaps also commercial and legal, but the idea holds good promise for improved bilingual dictionaries for the expression function provided the basic requirements of the expression and the understanding functions are clearly understood and satisfied, and provided that the needs of source-language speaker and target-language speaker are clearly understood and satisfied.

James E. Iannucci
Saint Joseph's College
Philadelphia, Pa., USA

論漢英與英漢字典

JAMES E. IANNUCCI

摘　　要

除了極少數的例外，漢英與英漢字典多半都是爲了使得讀者在意義的了解上有所獲得，我們覺得一部適當的兩種語文的字典是十分需要的，特別是一部具有使讀者能有表達能力的漢英字典。有一種英漢字典是根據英文字典，編撰而成的，其目的是要使中文讀者了解字意，倘若這類字典能够再加以修訂使得英語讀者在使用時獲得表達的能力，那麼這類字典在表達的功能上可以作爲漢英字典的借鏡。

NABOKOV AND THE NOVEL OF "MELODRAMATIC FANTASY"

JOHN MCLELLAN

To over a million readers he is known only as the author of a novel about a middle-aged man's abnormal obsession with immature girls while his actual background, style and achievement are far more complicated than most of his readers would dream. His place in English literature is similar to Stravinsky's place in music. Just as Stravinsky unites the tradition of nineteenth century Russia, the tradition of Tchaikovski, Moussorgski and Rimski-Korsakov, to the very latest tendencies in western music, so Nabokov is a connecting link between nineteenth century prose, the traditions of Dostoievski and Tolstoy, and the latest best seller. It is astonishing and rather awe-inspiring that the Russian genius in these two fields should be vindicated by these two expatriates while in Russia herself both music and novels continue to be reproduced in the same tired style that is now almost a hundred years old.

Geographically and linguistically, Nabokov's background is extremely complicated. He once described himself as "A Russian educated in Germany, writing in English and living in Switzerland". Like Conrad, he is remarkable as a foreigner, from Eastern Europe, writing in English which is not his second but his third language. Also like Conrad, he is pre-eminently a stylist whose work is outstanding for the brilliant flow, the pin-point precision, the perfect control and the rich variety of his language. He neglects plot and develops fantasy. The action in his stories is usually very simple while the structure is often extremely complicated. He has a number of ways of showing his contempt for "plot" or "story" as such. In one of his novels, *Laughter in the Dark*, he summarizes the plot in the first five sentences to eliminate "suspense", to destroy the reader's curiosity about what will happen and how the story will end. The only thing left is for the reader to enjoy the *way* he tells it. It is in the way he arranges, interrupts, describes and comments,

in short, in what he calls his "orchestration" that his brilliance as a writer consists.

Nabokov's novels do not always contain both melodrama and fantasy but usually they contain one or the other and very often they contain both. His output is by no means limited to fiction. He has also published poetry, translations, criticism and autobiography. These ouside interests of his also invade his fiction for, scattered through his fiction, we find poems, snatches of foreign languages, translations from foreign languages, criticism of various authors of Russian, French, English, American and other nationalities, reminiscences of his own autobiography, some real, some imaginary, and some distorted versions of real experience transformed into semi-fantasy. All this shows a very high-flown contempt for the straightforward presentation of ordinary, everyday, reality which was the ideal of the "naturalist" writers of fiction. He even indulges in long digressions on some of his favorite hobbies such as butterfly-collecting, sports etc. A man who includes so much besides story in his fiction is not going to leave out his ideas. In this sense Nabokov's works are "philosophic" novels as well as novels of fantasy. His ideas are expressed whenever he feels a desire to express them and some of them are repeated often enough to combine into a general picture of Nabokov's world-view. But he is not a philosophic novelist in the sense that Joyce and Beckett are. There is no one philosopher or group of philosophers whom he has used as the basis of his own world-view and as philosophic background for his fiction. His ideas do not form a system. They are isolated and fragmentary. We know very clearly what he is against but not what he is for; what he refuses to believe but not what he believes. There are ideas behind his fantasies but not a consistent philosophic system.

Nabokov's work naturally divides into two periods. In the earlier period his novels were written in Russian and in the later period he wrote in English. We will here consider three novels of his Russian period (they have subsequently been translated into English) and four novels of his later period, composed in English.

The three novels from his Russian period are (to give them their English titles) *Laughter in the Dark, Invitation to a Beheading* and *The Gift.* The first is a melodrama, the second a fantasy, the third a melodramatic fantasy.

Laughter in the Dark is a simple but very grim tale. It is the story of a man who is ruined by a woman. This theme, that of the *femme fatale,* the woman who destroys a man, is one that will occur again and again in Nabokov's work. This theme of misogyny running through the early work to end on a note of reconciliation with woman is one that is also found in Joyce. The setting is in Germany where Nabokov lived for many years. The book is short, the plot tragic. A middle-aged German art expert who has been happily married for years has first a flirtation and then an affair with a girl much younger and of much lower class. Little by little, the girl destroys him, breaking up his marriage, wasting his fortune and leading him to blindness and, finally, death. She is unfaithful to him, having an affair with a man of her own age and class. He is insanely jealous. While taking her away from the other man, he loses his sight in an automobile accident. Taking advantage of his blindness, she invites the other man to live with them at his expense. Finally, discovering that he has been betrayed, he tries to kill her but, again due to his blindness, he fails and is killed by her instead.

The story is clearly melodramatic. The simple but intense motivation, the accident and the blindness which results from it, the murder and attempted murder—all these are unusual events which both Joyce and the "naturalist" school would think unsuitable. The description, however, is realistic and the characters are ordinary people without any extaordinary traits of intelligence or character. Although there is no use of fantasy as such the central situation—the girl living with her lover in the same house as the blind man who is passionately (and blindly) attached to her—is intrinsically improbable and yet true to the basic facts of life. It seems to be an ideal, imaginative representation of infidelity—living off one man while giving oneself to another. The seriousness of tone is peculiar

to Nabokov's earlier writings. In his later works there is a large admixture of humor.

Invitation to a Beheading is a fantasy but not melodramatic. It is concerned with a political prisoner, in an unnamed and clearly imaginary country, awaiting execution. This situation, although not exactly a part of "ordinary, everyday life" is unfortunately by no means uncommon. One is reminded of the Communist regime from which Nabokov had been forced to flee but he is at pains to make the background abstract through fantasy. He is not interested in the political problem but the philosophic problem. The prisoner, Cincinnatus, has committed the crime of being an individual. He is opaque in a land where all are required to be (and practically everyone is) transparent. The author is not concerned with any particular political regime but with the condition of the individual under a super-modern, oppressive regime which uses all the devices made available by modern science and some which have yet to be invented by the science of the future to eliminate every trace of human individuality in its citizens. In other words, the book is an assertion of the human soul against those who would deny it. Cincinnatus is not allowed to know the date scheduled for his execution and soon it is clear to the reader, though not to Cincinnatus that no definite date has been set. He will be executed when he is ready, i. e. when he has been intimidated. Cincinnatus is not exactly bold toward his captors but is rather indifferent to them. The "plot" of the story seems to hinge around the implication that they cannot kill him unless he himself begins to take them seriously. They introduce him to his executioner. They send his wife to demoralize him. Finally they think he is in the required state of mind and he is led to the scaffold. But Cincinnatus has not been convinced. At the end he is convinced of the insignificance of his enemies. The enemies shrink to infinitesimal size and run for cover and Cincinnatus awakes, as if from a dream to find himself in the world of real human beings instead of the world of spectres by whom he had been surrounded.

Cincinnatus' captors seem to represent sub-human states of mind —typical of oppressive regimes. The story seems to say that if a man can overcome such states of mind within himself, nothing external can harm him. Far from being "naturalistic" it is idealist to an intense degree. The idea of the immortality of the soul, as if not clearly enough expressed in the story is emphasized by an epigraph, slyly attributed to an apocryphal Pierre Delalande: "Comme un fou se croit Dieu, nous nous croyons mortels"—"As a fool might think himself God, so we think ourselves mortals." This idealist, spiritual note, conveyed through a fantasy which is sometimes grim and sometimes humorous, is typical of Nabokov.

The final and most impressive book which we will consider from the "Russian period" is called *The Gift.* It was written in Germany during the years 1935–37 and describes the life of Russian Emigres (refugees from the Communist regime) living there. This is mainly a book of ideas, containing some melodrama and some fantasy but mainly concerned with literary criticism. The criticism involved is of Russian literature and is by no means easy for an "outsider" to evaluate as literary criticism. Nonetheless it is fascinating to read. The story is about a young poet, Fyodor Godunov-Cherdyntsev. Many of his poems are quoted. Not only do his poems come into the story but also his reflections on them: the circumstances under which they were written, the memories upon which they are based, the emotions he was trying to express, why he used this or that word, why he felt that this or that word was inadequate etc. In short there are many poems with very full commentaries on each.

At the end of Chapter One, there are several pages describing an imaginary conversation between Godunov-Cherdyntsev and another poet, Koncheyev, during which a great many famous Russian authors are discussed. In Chapter Two, there is considerable discussion of Pushkin. In Chapter Three, Godunov-Cherdyntsev decides to write a book, a critical biography of the Russian novelist, Chernyshevski. Then, in Chapter Four, the author incorporates the *entire book* that Godunov is supposed to have written. This book (i. e. this chapter) is ninety pages long. Chapter Five, the final chapter of the book,

begins with the criticisms of Godunov's book which appear in the Russian emigre press. This goes on for a good many pages. Finally, there is another imaginary conversation between Godunov and Koncheyev in which they discuss his book and Godunov's future as a writer. Then, after all this literary criticism, the plot resolves itself into a "boy gets girl" ending as Godunov elopes with the landlady's daughter. When he is not indulging in literary criticism, the author is discussing Godunov's family. For example, before writing the biography of Chernyshevski, Godunov considered writing a biography of his own father. Although he abandons this project, this does not prevent Nabokov from incorporating into the novel the "materials he would have used" if he had written it. In this way, he gives us about fifty pages devoted to the life of Godunov's father. Nabokov claims this is not a fictional representation of his own father, and it is not. It is another fantasy. Nabokov begins with what he knows of the life and character of his own father but then lets his imagination run free and transforms him into a completely different person. It is easy to see that with all these lengthy digressions, the amount of space left for the story is comparatively insignificant. Moreover, while devoting a great deal of space to "imaginary conversations", the author neglects the kind of material that ordinarily would be used to build a "plot". For example he mentions a love triangle, ending in suicide among some of the lesser characters in the book but gives only a few pages to this development and does not allow it to play any important role in his novel. Here are events that might have formed a conventional plot but he passes over them lightly. In the course of a conversation (to be quoted later in this essay) one of the characters outlines his own idea for the plot of a book. This plot-outline was used by Nabokov later for Lolita but in this book it is abandoned as soon as it is mentioned. Clearly, "plot" is not the most important element in a novel from Nabokov's point of view.

This novel is more complex than the two already studied. It is an expression of the author's ideas about Russian literature, but there are also more philosophical ideas involved.

The many pages devoted to the theme of Russian literature show us Nabokov's awareness of the Russian literary tradition and of his own place therein. Most western readers think of Russian literature as being "melancholy", "romantic", and "spiritual" while Nabokov, outwardly at least, seems the opposite of this: gay realistic, critical. From *The Gift*, however, we can see that Nabokov does share the spiritual heritage of the older Russian tradition. He has taken over the traditional romantic melancholy of Russian writers and has modernized it. Far from destroying it he has brought it up to date. In the previously studied works melancholy is more clearly visible in *Laughter in the Dark* and spirituality in *Invitation to a Beheading.* But in *The Gift*, also, both these qualities can be found. The love triangle and suicide bring a note of melancholy into this book but it is treated briefly and objectively, with irony and a degree of contempt. It is the old Russian melancholy with a new coat of modern bitterness.

Nabokov's book is "spiritual" in the sense that it attacks materialism. The ninety page biography and critique of Chernyshevsky is aimed at destroying one of the heroes of Russian materialism, a movement that developed at the same time as the "spirituality" of Dostoevski and Tolstoy. Nabokov's spirituality, however, is light and witty. It does not attempt to be dogmatic or "profound". Take, for example, the following description of the death of another materialist (who is also named Chernyshevski, though he is no relation to the subject of Godunov's biography).

> The following day he died but before that he had a moment of lucidity, complaining of pains and then saying (it was darkish in the room because of the lowered blinds): 'What nonsense. Of course there is nothing afterwards.' He sighed, listened to the trickling and drumming outside the window and repeated with extreme distinctness: 'There is nothing. It is as clear as the fact that it is raining.'
> And meanwhile outside the spring sun was playing on the roof tiles, the sky was dreamy and cloudless, the tenant upstairs was watering the flowers on the edge of her balcony, and the water trickled down with a drumming sound.

Nabokov has also a certain flair for the "romantic". This is shown in his whimsical style, his subjective approach to characteri-

zation, his contempt for the usual conventions and structure of a novel. *The Gift* not only reveals Nabokov's romanticism but its source. Pushkin, the strongest influence on all subsequent Russian poets and novelists, is the inspiration behind his style and technique. Even his unusual practice of filling his book with poetry as well as prose is a trait derived from Pushkin who was both the greatest Russian poet and also the greatest Russian prose writer of his time.

The Gift is the culmination of Nabokov's "Russian" period. In this work we find fully developed the following characteristics of Nabokov's work:

1) A neglect of plot and a tendency to combine discursive prose (i. e. "essays") with his fictional narrative.

2) A tendency to blend prose and verse into the texture of his fiction.

3) A wide use of fantasy. The fantasy used is of two kinds:
a: The occurrence in his novels of events which would be highly improbable in real life and which would be eschewed by writers of naturalistc fiction.
b: The description of imaginary events which take place only in the minds of his characters and not in the actual events of the story. Usually these fantasies are at first described as if they were actual events of the story and then are later admitted to be the fantasies of a particular character.

4) A style that emphasizes word-play, wit and humor.

* * * * *

After this, Nabokov was forced to make a very difficult transition. He gave up writing in Russian and began to use English as his language of composition. He said of *The Gift,* "it is the last novel I wrote, or ever shall write, in Russian." Although Nabokov already spoke English fluently, it cannot have been easy for him to change from his native language to a foreign language as the vehicle of his fiction. The difficulty of the transition is perhaps reflected in the style of his first book in English, *The Real Life of Sebastian Knight.* There is not so much wit or word-play as in *The Gift.* There are

no poems. In style it is more like his earlier work, *Laughter in the Dark.* It seems that, in writing English, he decided to begin with a simpler style and then, in his later works, he would gradually work in the verse, the fantasy and the stylistic adornments that made *The Gift* so fascinating. The general structure of the story was perhaps inspired by Henry James' *The Aspern Papers.* Perhaps this would be the most suitable place to say a few words on the general subject of "influences" on Nabokov.

Many critics have claimed that *Laughter in the Dark* resembles the work of Conrad. Others have found resemblances between *Invitation to a Beheading* and the work of Kafka. Nabokov himself has humorously compiled a list of writers whom critics have accused him of imitating. The list reads as follows: "Gogol, Tolstoevski, Joyce, Voltaire, Sade, Stendhal, Balzac, Byron, Beerbohm, Proust, Kleist, Makar Marinski, Mary McCarthy, Meredith (!), Cervantes, Charlie Chaplin, Baroness Murasaki, Pushkin, Ruskin, and even Sebastian Knight."

I am inclined to agree with the author that the critics have overdone this search for "influences". The resemblances to Conrad and Kafka, which I referred to above, as well as the resemblance to James in the structure of *Sebastian Knight* are all vague and general, not worth studying and hardly worth mentioning. The only influence that I find deep and persistent in Nabokov's work is that of Pushkin and Gogol and I will not linger over resemblances to any other writer. The influence of Joyce was not, in my opinion, direct but was felt through the entire literary atmosphere of Europe which had been transformed by Joyce.

The Real Life of Sebastian Knight is a search for the answer to some riddles about a famous novelist who has recently died. It is the way that the story is built around this intellectual search for the answer to personal problems connected with a literary career that reminds the reader of *The Aspern Papers.* But this is only the superficial structure. The themes treated are those of Nabokov. The search is conducted by the author's brother. This brings in the family theme which has such great appeal for Nabokov. Nabokov

himself had a brother, slightly younger than himself, who had died a short while before Nabokov began this book. Nabokov has expressed his regret that he did not understand his brother more fully. Nonetheless, this is not a study by Nabokov of his younger brother. Instead, he transposes the situation. In the book it is the older brother—the novelist—who dies and the younger brother who conducts an investigation in an attempt to understand his older brother more fully. Here, Nabokov has done with his brother what he had already done with his father in *The Gift*. Through his fantasy he creates a new fictional person who takes the place of the real person but in whom the author feels an interest analogous to that which he feels for the real person.

Another theme typical of Nabokov is that of the "*femme fatale*", the woman who ruins a man. For Sebastian Knight—the novelist who died—has been ruined by a woman and his brother's investigation is mainly aimed at discovering who the woman was. As a result he is almost trapped and ruined by the same woman and this narrow escape contitutes the "plot" which Nabokov finds necessary to attach to his work although he does not consider it very important. The other main theme, besides that of the "femme fatale" is that of death and intimations of immortality, a theme which occurs both in *Invitation to a Beheading* and *The Gift*. Sebastian Knight's last book, "The Doubtful Asphodel" deals with the problem of death and was written while the author was dying. The book implies that there is a great secret about death which he has just realized and is on the point of communicating when he is stopped by death. Apparently this is the secret of immortality which the narrator, Sebastian Knight's brother, expresses at the end of the book, "the soul is but a manner of being—not a constant state—that any soul may be yours if you find and follow its undulations. The hereafter may be the full ability of consciously living in any chosen soul, in any number of souls, all of them unconscious of their interchangeable burden".

Thus, with some changes in technique, we find the main themes of Nabokov's Russian novels carried over into his first English novel.

The full development of Nabokov's style in English appears in *Lolita*, the one work which made him rich and famous in America. The idea for this story had been in Nabokov's mind for a long time. He had originally planned it as a short story with its setting in France but even earlier than that he had outlined the idea in a passage from *The Gift*. Shchogolev, a character with no literary talent or ambitions, makes the following remarks:

> Ah, if I only had a tick or two what a novel I'd whip off! From real life. Imagine this kind of thing: an old dog but still in his prime, fiery, thirsting for happiness—gets to know a widow and she has a daughter, still quite a little girl—you know what I mean—when nothing is formed yet but already she has a way of walking that drives you out of your mind—slip of a girl, very fair, pale, with blue under the eyes—and of course she doesn't even look at the old goat. What to do? Well, not long thinking, he ups and marries the widow. Okay. They settle down the three of them. Here they can go on indefinitely—the temptation, the eternal torment, the itch, the mad hopes. And the upshot—a miscalculation. Time flies, he gets older, she blossoms out—and not a sausage. Just walks by and scorches you with a look of contempt. Eh? Do you feel you have a kind of Dostoevskian tragedy? That story, you see, happened to a great friend of mine, once upon a time in fairyland when old King Cole was a merry old old soul.

The above monologue constitutes a summary of the plot of *Lolita* but in *The Gift* it is a summary of the situation of the character who speaks it. Shchogolov is married to a widow with a beautiful daughter and it is easy to guess he is talking about his own situation. It is interesting that he speaks of the book he could write about his own experience as a "Dostoevskian tragedy". The work Nabokov later wrote on this theme, *Lolita*, could hardly be described in those terms, yet this remark of Shchogolov's may indicate the source from which Nabokov first got the idea for this plot. But this is a point we will discuss in more detail a little later.

Except for this one reference there is no further treatment of this theme in *The Gift*. More than twenty years later it is taken up again to form the first part of the plot of *Lolita*. The protagonist, who has an abnormal attraction toward immature girls, marries a widow for the sake of getting access to her young daughter. He then

runs away with the latter and takes her all over the U.S. as his "daughter". When Nabokov first outlined this plot in 1935, he probably had no intention of ever using in again. Twenty years later it emerges as the plot of his most famous novel. Probably this did not happen either by sheer accident or by design but as the result of a cumulative process. As the result of further experience he acquired new ideas which shed light on this old one. It was only after he saw the possibility of combining this outline with certain other themes that he found it suitable for a novel.

The first of these new themes was the "femme fatale" motif which he had already used in such works as *Laughter in the Dark* and *The Real Life of Sebastian Knight.* This theme appears in *Lolita* when, after running away with the young girl, the man finds out that she already knows more about sex than he does, and that she is unfaithful, finally deserting him for another man.

The romance, however, is brief and Humbert Humbert (for this is the protagonist's name) is not immediately destroyed by it. At this point another theme intervenes—the theme of "America". The setting of this story is in the United States, in fact it is all over the United States. First when Humbert is running away with Lolita and afterwards, when she has left him and he is pursuing her they go further and further until they have covered the entire United States from coast to coast. This gives the author his chance to give his impressions of the scenery, types of people, manners and customs to be found all over the United States. *Lolita* is about America as much a *The Gift* was about Russian literature.

Many critics find this true not only at the literal level but even at the symbolic level. Henry James, in many of his stories represents America as a young and innocent girl who is corrupted or at least tempted by an older, wiser but less virtuous Europe. Many critics have held that *Lolita* is an answer to James, showing that the young girl may turn out to be even less innocent than the older man who is trying to seduce her. The theme of "America" is so prominent in *Lolita* that it seems to give some basis for this interpretation. Nabokov himself, however, scoffs at this interpretation and it is

clear that the theme of Lolita was in his mind long before he had any experience of America or of American girls. He first brings up the theme in *The Gift*, as we have seen, and there it is a question of a Russian man and a Russian girl. He next attempted to use this theme in a short story where the man and girl would both have been French. Clearly he is interested in the psychological problem, not in inter-cultural comparisons. None the less, the French short story was never completed or published and the reference in *The Gift* is only a hint. *Lolita* needed an American background to be successful. Perhaps this was necessary not so much to express the ideas of the author as to win the acceptance of the audience. It is only about the American girl that the world would be willing to believe what Nabokov says: that, at twelve years of age, she is already a *femme fatale*, cold, venal, sensuous, fickle and yet not really feminine.

It is probably to Dostoevski rather than Henry James that we must look for the germ of Nabokov's idea. Dostoevski worshipped children and childishness. To him, the corruption of a minor was the most terrible, most deadly of sins. His horror of this appears many times in his work and in his life. In his work it is found most explicitly in *The Possessed* where Stavrogin's diabolism is shown by his having seduced a twelve-year old girl.

It is probably this reference in Dostoevski, rather than anything in Henry James, that served as Nabokov's point of departure. The twelve-year old girl is by no means innocent and if anyone in this novel is diabolical it is she rather than the middle-aged man. This agrees well with the misogynist theme we have already noted in Nabokov's previous works and is a further development of it. It seems that he now wishes to show that the *fille*, as well as the *femme*, may be *fatale*. As noted above, however, the theme is not unrelated to that of "America" for one of the criticisms he is making of that country is the type of feminity (or lack of it) that is to be found there.

In this novel, however, the woman (or girl) does not destroy the man nor does he destroy her. He sees his mistake and repents.

Besides, she has grown older and no longer inspires such uncontrollable passion in him. He becomes her friend instead of her lover and offers assistance to her husband who wishes to migrate to Alaska.

And yet he is destroyed. For he must take revenge on the man who snatched her from him. This is not her husband but an earlier lover (though later than Humbert) who has been inhumane in his treatment of her. Humbert must take revenge and, as a result of the murder he commits for this purpose he is imprisoned in an asylum for the criminally insane and there he writes *Lolita.*

One does not, however, take this final section of the novel very seriously. It is pure melodrama, brilliantly written but remote both from actuality and from the main themes of the novel. It is almost as if the author felt a bit of melodrama toward the end was required to "sell" the novel. Furthermore the story—the "plot"—must have an ending and this sequence serves to end it.

This novel shows a further development of Nabokov's style in English. It is much more poetic in texture than was *The Real Life of Sebastian Knight.* The author does not introduce original poems in English as he had introduced many original poems in Russian into *The Gift* but the text is studded with quotations from and allusions to poetry. For the most part the poetry in question is that of Edgar Allan Poe. This is appropriate in many ways. For Poe is American and the book is about America. Also Poe, like Humbert, seems to have been attracted to excessively young girls and the theme of the "child-bride" is frequent in his works. Moreover, these allusions give the book a rich literary flavor in which Poe—the American poet and story writer—occupies a place very similar to that held by Pushkin—the Russian poet and novelist—in *The Gift.* This tendency to blend prose and poetry into a single narrative was to reach a climax in his next novel, *Pale Fire.*

Pale Fire is a very extraordinary work and probably marks the culmination of Nabokov's work in English. In form it is extremely unconventional. As in *The Gift,* the main character of the story is a poet and, as in the earlier novel, we are presented with specimens of his work. In *The Gift,* however, it was a series of short poems

with longer commentaries explaining the reminiscences of early childhood on which the poems were based. In *Pale Fire* we are presented with a single long poem (one thousand lines divided into four "cantos") and an even longer commentary (over two hundred pages). The Poem is supposed to be by John Shade, the fictional protagonist. The commentary is supposed to be by a certain Charles Kinbote, another character of the "novel". The novel itself consists entirely of the poem and its commentary plus an introduction to the whole, also supposedly by Kinbote. The poem and the commentary tell two different stories which happen to intertwine in some places. In the poem John Shade tells of his daughter's suicide and his subsequent attempt to understand the nature of life after death. The commentary tells the story of Charles Kinbote who is actually the king of a country called "Zembla" (the name resembles the Russian word "zemlya" which means "land") who has been driven out of his country as the result of a revolution. He is living in America under a false name. Nevertheless, the revolutionary regime of Zembla discovers his whereabouts and sends an assassin to kill him. Mr. Kinbote teaches in the same university as John Shade and lives next door to him. He also admires Shade's poetry and the two become close friends. When the assassin attempts to shoot Kinbote, Shade steps in the way of the bullet and is killed instead of his friend. His friend then undertakes to edit and comment upon Shade's last poem and the result is the book, *Pale Fire.* In his commentary, however, Kinbote tells his own story rather than elucidating the poem. Finally however, the fate of the two men is so intertwined that the commentary is perhaps not without relevance. It is in this intricate and round-about way that the author develops his themes in this amazing work.

The main theme is one that we have seen before in Nabokov's work. It is the subject of death and the possibility and nature of life after death. This theme was already prominent in *The Gift, Invitation to a Beheading* and *The Real Life of Sebastian Knight.* The theme is developed directly in the poem by John Shade and is emphasized by Shade's death immediately after completing the poem.

As soon as he has understood what death is and recorded his perception of it, he is ready to die. His theory is that all the apparently haphazard events of life are really inter-connected in an intricate web of purpose (which might be called "fate") which works toward a pre-determined goal and that the fulfillment of this goal takes place only after death. Life in this world is thus only a preparation for the future life which, of course, we cannot see clearly while we are still in this life. All we can see is the subtle inter-connections of things and the direction in which they seem to be pointing. The inter-connections of Shade's life with that of Kinbote, which we find in reading the commentary and which culminate in Shade's dying instead of Kinbote are given as an example of what he means, although Shade himself, being dead, cannot point this out explicitly while Kinbote, who writes the commentary, is too pre-occupied with other matters to see this point himself much less to point it out to the reader. The author thus gives us a sequence of apparently unrelated events which culminate in a catastrophe which seems to be chance but is really "fate". Life, then, follows a pre-ordained course and is not a sequence of accidents which ends with death. Far from being a solemn argument to prove the author's point, the book is a deliberately absurd tragi-comedy with ridiculous characters and fantastic action. It is melodramatic in its ending. And yet there is nothing unbelievable about either the people or the events. The melodrama is of the sort that has actually happened frequently enough in the twentieth century for us to feel well acquainted with it. The suicide occurs in a perfectly plausible manner and such an event is in itself not uncommon. Like *Lolita* the story ends in a murder but here the murder is of a type (political assassination) which the reader cannot dismiss as unmotivated or unrealistic. Fantasy and melodrama are blended in a plot that is both intricate and convincing. Prose and poetry are blended in a way that is absurd but fascinating.

The intricacies of the story can be seen in the person of the rather complicated narrator, Dr. Charles Kinbote. He is the focal point for the more fantastic part of the story for in reality he is

the exiled king of Zembla (paradoxically Nabokov puts the more imaginative elements of the novel into the prose section and the more logical and realistic elements into the poem). His name "Charles" reminds the reader of two English kings named Charles, one of whom was killed and one of whom was exiled. His surname "Kinbote" is also a reminder that he is a king. He has the additional peculiarity of being homosexual—a trait that reminds one of the sexual abnormality—although it is quite a different one—of Humbert Humbert. It is typical of the modern novel to present its events from an "unusual" point of view. This frequently takes the form of a narrator who is abnormal in one way or another. These features of his stories are not to be taken as symptomatic of some abnormality in the author himself. Indeed, I do not even find evidence that he has any particular insight into such abnormal conditions. His technique in the case of Humbert Humbert is to make him rave about twelve-year old girls in much the same terms we would expect a normal person to rave about girls who are five or six years older than that. In the case of Charles Kingbote he makes him speak about boys in much the same way that a playboy would speak about girls with only slight and obvious modifications. This pecularity of Charles Kinbote also serves a number of purposes in the story. It explains to some extent the intensity of his devotion to Shade for whom he evidently feels a sublimated and idealized homosexual attraction and leads to various conflicts with Shade's wife which increase the interest of the narrative.

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It is time to say something about the style both of the verse and the prose of this work and here we must give more detailed consideration to the two authors who have influenced Nabokov most strongly—both of them Russians. The two are Gogol and Pushkin. Gogol we may consider as the chief influence on the author's prose and Pushkin as the chief influence on his verse. The existence of this influence is by no means difficult to discover since Nabokov freely admits his admiration for both these writers and has written a book

about Gogol and translated Pushkin's most famous poem (*Eugene Onegin*) into English.

It is from Gogol that Nabokov acquired the technique of writing a prose that blends horror with humor. Like Gogol he finds the world grotesque. Also like Gogol he believes in a higher reality behind the absurd appearances of things in this world and can therefore laugh at the latter even when fully aware of and sensitively describing their horror.

Pushkin can best be described to the reader who does not read Russian as being a Russian poet who very closely resembles Byron, having been strongly influenced by him. It is the Byron of the middle period and not the Byron of *Don Juan* who made this strong impression upon Pushkin and he emerges as thoroughly "Byronic"—brooding and bitter but witty and ironic in his nihilism. Although he cannot match the satirical wit of Don Juan, Pushkin improves upon his model as a "narrative" poet. He organises his story better than the author of *Manfred* and makes the reader feel an interest in the story itself, not just in the philosophy which the author expresses in his numerous digressions. No doubt this is partly due to Pushkin's experience as a writer of prose fiction. He brought to his verse the discipline of a distinguished prose writer and he remains to this day the classical model for Russian prose as well as verse.

Nabokov's verse is, then, "Byronic" at third hand; Byron translated into Russian and then back into English again. From the point of view of modern poetry it is at least a hundred years out of date. It is, however, clever, by disciplined, witty and elegant. Moreover it is revivified by the author's brilliant mastery of words and of speech rhythms. It is discursive rather than concentrated. It is worthy of the description that Matthew Arnold unfairly bestowed upon the verse of Dryden and Pope: "It has the virtues of prose, not of poetry". In combination with the prose narrative in this volume it makes a charming package. If Nabokov were to write a number of volumes in verse alone, I do not think I would care to read many of them.

But the use Nabokov makes of this technique which is essentially that of Pushkin is astonishing because it is so paradoxical. Pushkin was, as mentioned, a nihilist. His loose discursive technique is used to show that there is no order in the universe. Nabokov, on the other hand, uses it to show the opposite: that there is a subtle order underlying the apparent disorder. Perhaps an example will make this more clear.

> While snubbing gods, including the big G,
> Iph borrowed some peripheral debris
> From mystic visions; and it offered tips
> (The amber spectacle for life's eclipse)—
> How not to panic when you're made a ghost:
> Sidle and slide, choose a smooth surd and coast,
> Meet solid bodies and glissade right through,
> Or let a person circulate through you.
> How to locate in blackness, with a gasp,
> Terra the Fair, an orbicle of jasp.
> How to keep sane in spiral types of space.
> Precautions to be taken in the case
> Of freak reincarnation: what to do
> On suddenly discovering that you
> Are now a young and vulnerable toad
> Plump in the middle of a busy road,
> Or a bear cub beneath a burning pine,
> Or a book mite in a revived divine.

Superficially, the author seems to be mocking at the idea of life after death, considering in turn the various absurdities that follow from the idea. This attitude of universal mockery is very much in the tradition of Pushkin and his predecessor, Byron. However, the poem taken as a whole is actually an argument in favor of the notion of life after death and the stanza quoted (along with several further stanzas) is mocking only false ideas of survival demonstrating that the author who holds such a notion of survival does not do so on any naive basis. This double irony, mocking the ordinary view

of life and then mocking those who mock it, is a new twist that Nabokov has given to the tradition he inherited.

It should by now be clear that even in his most mature English novels Nabokov remains a writer who is very much in the Russian tradition. By bringing the material of this tradition into contact with twentieth century English literature he has developed a new type of modern novel—or perhaps we should say non-novel.

In his latest novel *Ada*, Nabokov carries this process even further—perhaps further than it ought to have been carried. His theme this time is incest—not surprising in view of the prominence sexual non-conformism has held in his previous work. The plot in this case is very complicated and symmetrical—and utterly unbelievable. There are twin brothers married to twin sisters. The son of one of these couples carries on a life-long love affair with the daughter of the other couple. The parents disapprove and they do not marry because of the closeness of the relationship. Actually as the story goes on we learn that the relationship is even closer than it appears on the surface; for one of the twin sisters has had an affair with her sister's husband who is her husband's brother and therefore, the young couple are not merely first cousins but half-brother and half-sister. Very complicated. Quite symmetrical. Not at all believable. But we know the author does not consider plot very important. Perhaps there is some idea in the background of which the incestuous relationship is only a symbol. Alas, I can find none. Again all three couples, parents and children, are exiles from a mythical land which bears a striking resemblance to Russia. There is a contrast between the two worlds and once more there is the theme of exile. There is poetry, both Russian and English (and French and German) to enrich the texture of the novel. And yet the work does not seem solidly planned or based on any fresh conception. It is as if the author had gathered all the tricks he had collected in a lifetime and then thrown them into one bag. It is certainly a fine example of the use of fantasy and melodrama that we expect of this writer but in this instance used apparently without any deeper underlying principle.

Apart from the merits or demerits of his most recent novel, however, there can be no doubt that Nabokov has made a major contribution to the English novel in the period following the death of James Joyce.

摘　　要

這篇文章追溯納伯可夫作品中的多種主題——包括早期用俄文及稍後以英文所完成的作品。其目的在解釋這些主題的起源，形成的方式，以及作品的特色。本篇文章着重於其他俄國及外國作家對他作品形成的影響。

One of the reasons why I think the present-day study of language is most interesting is that it suggests a way in which other cognitive systems could be studied... I suspect that the properties of the language faculty are probably closely associated to the faculties that lead us to what we call common sense — our common-sense knowledge of the would.

— Mark Lester

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The whale has a two-fold distinction among the fishes:
first, when seen from a distance,
it looms large among them
and, secondly, on close examination
it is found to be no fish at all.

— M. F. Meyer

A MAN CALLED FAUST

PETER VENNE, SVD.

In the market place of the little town of Knittlingen in Southern Germany the visiting tourist will probably stop before the statue of a man who has given his name to one of the greatest literary figures in European literature: Faust. According to contemporary sources he was born in 1480 and died 60 years later. The learned Benedictine abbot Trithemius wrote in 1507 that he met this man and called him a "vagabond and rogue". He was a sort of wandering scholar, practicing medicine, astrology and divination. He was known to Luther and other leaders of the Reformation.

It was an age of great commotion in Europe. New horizons were opened by the explorers of the globe and the sky. Man learned to step boldly beyond the accustomed frontiers of his mind and into new realms of knowledge and belief. A new image of the world began to take shape. The old powerful organization of the Catholic Church which had dominated the Middle Ages seemed to break up. It is no wonder that in such confusion and unrest many people saw the powers of evil at work. Popular imagination was teeming with strange inventions of devilish shapes and magic powers. It was the time of the witch trials. The famous picture of A. Dürer (who lived at the same time as Faust) *Knight, Death and Devil* depicts the Evil One in horrible shape.

It seems impossible to separate the historical Faust from the legendary Faust. Soon after his death, tales of obscure practices and black magic were connected with his name. Preachers on the pulpit thundered against the evil doctor and thus helped to elevate the mysterious scholar to the rank of the great magicians and wizards.

In 1587, a printer in Frankfurt published a *Historia von Dr. Johann Fausten, the widely known magician and necromancer* (original title in German) in which he collected many tales about the famous or rather notorious doctor. During the next hundred years this so-called

Volksbuch von Dr. Faust went through many enlarged editions and became extremely popular. The Dr. John Faust of this *folk book* is a many-sided scholar. Because he is in possession of secret knowledge he is able to practice magic arts. But in order to increase his powers he wants the help of the devil. One dark night he goes into a deep forest and there at a crossroad draws his magic circles and conjures Satan to appear. All this was quite in agreement with popular belief.

The devil appears, not Satan himself but his delegate Mephistopheles. Faust makes a pact with him which he signs with his blood. The story says that before the signing of the document there appeared on Faust's hand the letters: O homo, fuge! (Flee, o man) as a last warning. According to the pact, Mephistopheles had to serve Faust with his demonic powers for twenty-four years. After this time he would have full power over Faust's body and soul. The meaning was that the devil would kill the magician and take him to hell.

What use does Faust make of the supernatural powers which Mephistopheles puts at his disposal? First he wants the best of food and drink and clothing; also plenty of money. He demands the women of his choice, among them Helen of Troy. He travels through Europe, Asia and Africa. The devil even takes him through the nether world and the realms of the sky. He enjoys crude pleasures with his companions. All the time he also discusses with Mephistopheles questions about the stars, the creation of man and the devils in hell. All in all, it is a chain of low and sensual experiences with which Faust is wasting away the precious twenty-four years. Toward the end he completely breaks down in melancholy and despair. When the final hour draws near his students hear a terrible stormwind howling around the house and Faust screeming in horror. The next day they find his dismembered body. They overcome their fright and bury him. Certainly nobody dared to speak over his grave the kind and forgiving words: Rest in peace. Because for Faust there would be no more peace for all eternity.[1]

This is the legend of Dr. Faust as it is told in the *Volksbuch*. Faust appears in it as a rather pityful figure, always plagued by his bad conscience. He has no high aspirations. The episodes told about him are a medley of popular beliefs and superstitions and show little psychological comprehension.

* * *

But Faust was not dead and buried for good. The book became a best seller and was translated into many languages. In England the story fell into the hands of Christopher Marlowe. In his *Tragical History of Doctor Faustus* (c. 1589) he created the first great Faust drama. "His play breathes a different atmosphere to that of the German book, with its stuffy scholar's study in a small Gothic town," writes the Goethe scholar R. Friedenthal who further points out that Marlowe lived in London and that his view was world-wide. His Faust belongs to the type of the Elizabethan conquerors and explorers. He is a contemporary of Francis Bacon, not of Martin Luther. He is already able to doubt the existence of hell, that it might be "trifles and meere olde wives' tales."(2)

Marlowe followed the traditional story rather faithfully. He kept the low comedy scenes because he found them in the original. But they play no significant part in his tragedy. In Marlowe's handling Dr. Faustus becomes more than a magician. He is one of the great Renaissance figures "filled with divine lust for what is more than human. He is not an atheist but a rebel against the Ultimate Authority, willing to pay for knowledge with his soul, but moved by heart-rending misgivings when he reconsiders the dreadful pact."(3) Critics have pointed out that if Marlowe had omitted the magical pranks and the horse-play, his tragedy would be like one of the great morality plays in which the powers of good and of evil contest for the immortal soul of man.(4)

From England the play came back to Germany by travelling English comedians. In the form of puppet shows, penny pamphlets and popular theater the fate of the famous magician became known all over Europe. At the same time, the Faust-book continued to fill

the imagination of the people with fantastic shapes and exploits of the demonic world.

* * *

There was a man called Faust who lived around the year 1500 in Germany who was a charlatan; then there is the legendary Faust of the popular Faust-book who sells his soul to the devil and ends up in hell; and finally there is the Faust of a superb dramatical poem by Goethe. He is a man who is always striving and therefore can be redeemed.(5)

Goethe became familiar with the Faust-play in his childhood when he watched the puppet shows in his native town Frankfurt. Friedenthal gives an impressive description of that age: "The dark world of magic and witches was still a reality in the early years of Goethe's own lifetime, and by no means only in books, or as a relic of the Middle Ages, as it was for the Romantics. The courts and popular 'justice' still examined witches and they were still drowned and burned at the stake, if not in masses, nevertheless in grim reality.(6) Before Goethe, other writers in Germany had tried to create Faust-plays, among them G. E. Lessing who intended to give his hero a certain dignity. Only a fragment of Lessing's *Faust* has survived. The poets of the 'Storm and Stress' movement (Sturm und Drang), Fr. Müller and F. M. Klinger made Faust the speaker of their titanic desire for freedom.

Nowadays when we speak of Faust, we usually think of Goethe's masterpiece. Goethe worked on the Faust theme practically his whole life. As a young man in his twenties he wrote a fragmentary *Ur-Faust;* when he was over fifty he published the First Part of the present play ending with the Gretchen-tragedy; and only when he was 83, the Second Part was completed.

Goethe followed the traditional legend in many details. His Faust, too, makes a pact with the devil, bartering his soul for the service of the powerful spirit. The low pranks are presented in the scene of Auerbach's cellar. The sensual adventures of Faust are hinted at in the Witches' Sabbat of the Walpurgis-Night. Goethe also kept the Helen of Troy scene.

Goethe added the entire Gretchen-episode which has no counterpart in the *Faust-book*. He also added the classical Walpurgis-Night and much of the Second Part of the play. But above all, Goethe lifted the entire story from the primitive level of magic and crude farce to the level of man with all its heights and depths. From the Prologue in Heaven on it becomes quite clear that Faust cannot end in hell because Mephistopheles, the devil, is not presented as the 'Evil One'. He is modelled after the Satan of the *Book of Job* in the Old Testament, a servant of God who is sent to test man, not to destroy him.

In the *Faust-book* there is a pact which lasts twenty-four years. Goethe changed this pact to a sort of wager. His Faust is sure that the devil will never be able to fulfill his desires for pleasure, women, honor and higher aspirations. So he tells Mephistopheles that if the moment provided by the devil would be so sweet that he could wish it to last forever, he would willingly die and perish in hell.(7)

The First Part culminates in the Gretchen-tragedy. In the Second Part "the Gothic world disappears to make way for the Greek dream of the *Helena*.(8) The pact seems forgotten or abandoned. Only at the end does Goethe return to the pact and the devil. Faust, now old and blind, has put his powers to the service of mankind by cultivating a large territory of swamp land for people to live in—a free land for a free people. When he realizes this, he feels the moment has come which he wanted to linger on. But at this moment he also has lost his wager and the devil comes to claim his soul. But here the Almighty interferes. In the Prologue the Lord had declared that

> Man errs as long as he will strive,

but that

> A good man in his darkling aspiration
> Remembers the right road throughout his quest.

In the end, Angels carry Faust's soul to Heaven because

> Who ever strives with all his power
> We are allowed to save.(9)

What of Faust's salvation? He had not, as Everyman, 'Good Works' and 'Faith' to accompany him into death. He himself confesses that he had "merely sped through life, clutching by the hair each new desire." He shows no feeling of remorse for the death of Gretchen whom he had seduced. Friedenthal says "Faust's salvation, an extremely problematic affair if we try to explain it in ethical or religious terms, is achieved be poetic mercy."(10)

Many readers of Goethe's *Faust* have been overwhelmed by a feeling of awe and resignation before the wisdom, the plenty and the obscurity of this poem. Goethe's overflowing imagination, his comprehension of human experience, his irony and the mastership of verse and style have made it one of the great achievements of world-literature.

* * *

There are a number of other literary presentations of the Faust-story but all of them stand in the shadow of Goethe's creation and are, therefore, less noticed. But they testify to the undying interest in the subject. Some writers of the 'Storm and Stress' period have already been mentioned. Lord Byron's *Manfred* (1817) has taken much from the Faust-legend and shows striking similarities to the works of Marlowe and Goethe. After Goethe's death, the Austrian poet Nikolaus Lenau wrote a Faust-drama (1835). He claims that Faust is not the property of Goethe alone. In his own version Faust ends his life by suicide. Heinrich Heine is the author of a 'Tanz-Poem' *Dr. Faust* (1851). Among the musical dramatizations, those of H. Berlioz, Ch-F. Gounod, and F. Busoni have become well-known.

If we compare the literary presentations of the Faust-legend to a mountain range, we can point out some peaks: the original *Faust-book* from which the subject took its start; Marlowe's tragedy which was its first memorable dramatic form; Goethe's play which transformed the old story into a mirror of universal human experience. There is a fourth peak: a novel by Thomas Mann.

It would seem an impossible task to transplant the old Faust-figure and his fate into our own age and to give it an interpretation that modern man will accept. But this is just what Thomas Mann

did in his novel *Doktor Faust: The Life of the German Composer Adrian Leverkühn as Told by a Friend* (1947). His 'Faust' Adrian lived from 1885 to 1940. He was a brilliant man, but proud and arrogant. His special gift was music. As a young man he contracted in a brothel a venereal infection which was to account for his uncanny musical genius and the final disintegration of his mind. Some years later, in a mysterious, half-imagined and half-real scene he had an encounter with the devil who, for the price of Faust's soul, was to help him achieve the highest artistic creations. He spent the second half of his life in quiet retirement, producing the music that made him famous and communing in subtle sexual debauchery with demonic beings. (Here again the author puts the events in the twilight of possible hallucination.) As the years passed, he sank deeper and deeper into melancholy. His mood was mirrored in the titles of his great musical works: 'Apocalypse' and 'The Lamentation of Dr. Faustus', the latter on outcry of the hopeless despair of a condemned man. When he played this last masterpiece for some friends he shocked his audience by his blasphemous comments. Then he broke down and spent the last years of his life in madness.

The horrible story is told by Adrian's friend, a retired teacher, a simple and honest man who is in every respect the opposite of Adrian. Thus the novel is told on several levels of style and meaning. The story teller also provides the background of contemporary historical events, the time of the two world wars. The course of the novel runs parallel and is closely interwoven with the fate of the German nation, esp. during the rise and fall of the so-called Third Reich. The 'Faust' of this novel is presented as a symbol of the character of the German people, its inherent problems and dangers. The final wreckage of Adrian's mind is synchronized in a highly artistic way with the last throes of Germany's collapse in the last war.[11]

In the novel the author attempts to interpret the relationship of man to the dark and chaotic powers of the world. His modern Faust is a composer. Music is the medium which connects man with the depths of the universe, as Nietzsche had already written

in his *Birth of the Tragedy out of the Spirit of Music.* But the center of the world is darkness, not light. Thomas Mann's devil is not just a principle of Evil, a counterpart of God; he is certainly not the sceptical Mephistopheles of Goethe. Rather he is, in the words of W. Grenzmann, the literary personification of 'Nothing' in the sense of the Existentialists. "The laughter of Hell is the echo of Nothing." With deep pessimism and despair Thomas Mann watches his age running into a catastrophe from which no salvation seems possible.(12)

* * *

The name of Faust has become the symbol for something that is deeply embedded in human nature, the striving of man to reach for the stars. St. Augustine already has written of the restless human heart. Man chafes under the limitations which are set to his physical desires and to the yearnings of his mind for knowledge and power. In the figure of Faust this desire has found a symbolic expression. But it is not given to man to have all his desires fulfilled. The ancients called it 'hybris' or pride when a man forgets that he occupies only a very minor place in the universe. Medieval people who believed in demonic beings saw the possibility of inviting the powers of evil. But man had to pay for it with the most precious thing that he could call his own. Words of the New Testament express well the answer which the Bible would give to the Faust-problem: "What will it profit a man if he wins the whole world but loses his own soul?" (Mt. 16, 26).

Since the days of Goethe the adjective 'Faustian' has found wide application. The Goethe-scholar Fr. Strich explains how the Faustian spirit of insatiable craving entered into rule-bound, rational French literature and helped to create the Romantic Movement in France. French critics saw in the life of Faust a reflexion of the history of the human mind with all its errors and pains and purifications.(13) In his big work *The Decline of the West,* Oswald Spengler writes of the "Faustian world-feeling of *deed* which smoothes itself down to a philosophy of *work.*" Spengler, too, sees in Faust the representative

of western culture. "In *Faust* Goethe presaged, psychologically, the whole future of West Europe."(14)

Thus the Faust-figure has become a living part of Western literature Comparable to the ancient Greek characters of Prometheus, Antigone, Orestes, Electra and others. All of them are personifications and symbols of elementary human forces, dilemmas and sufferings.

NOTES

(1) Cf. E. Jahn, *Begegnungen mit dem Teufel*, Tokyo 1957; *Historia von D. Johann Fausten* (the folk-book), Reclams Universal-Bibliothek, Stuttgart 1966.
(2) Richard Friedenthal, *Goethe: His life and Times*, Cleveland 1965, p. 495.
(3) Woods-Watt-Anderson, *The Literature of England*, Chicago 1958, Vol. 1, 435.
(4) Woods, l. c. p. 436.
(5) Jahn, l. c. p. 21.
(6) Friedenthal, p. 497.
(7) Part I. Faust in his Study; transl. by Friedenthal, p. 503.
(8) Friedenthal, p. 503.
(9) Walter Kaufmann, *Goethe's Faust* (translated into English), Garden City, N. Y. 1961.
(10) l. c. pp. 505, 506.
(11) H. E. Holthusen, *Kritisches Verstehen*, München 1961, p. 302.
(12) W. Grenzmann, *Dichtung und Glaube*, Bonn 1952, pp. 50, 64.
(13) Fr. Strich, *Goethe unde die Weltliteratur*, Bern 1957, pp. 218, 223.
(14) O. Spengler, *Decline of the West*, N. Y. 1961, Vol. 1, 354, 355.

摘　　要

在西洋文學史上，浮士德已成爲最重要的角色之一。這個名字取材於西元1500，一位名叫浮士德的人，住於德國南部。所謂"浮士德民間傳說"(Volksbuch of Dr. Faustus) 曾蒐集許多傳奇故事，特別是浮士德爲貪求享樂人生，將自己的靈魂出賣給魔鬼。後來英國的馬羅寫下了"浮士德博士的悲劇"，在德國歌德創寫其名劇"浮士德"。當代大師湯瑪斯曼亦著作其重要小說"浮士德"。

因之，浮士德在西洋文學史上已成爲不朽的典型，堪與希臘古典文學中的安提葛妮，歐瑞斯蒂斯、普羅米修士等相抗衡。他們象徵，著並具體地表現出人性的基本力量，困境，與苦痛。

Language itself is a system of human culture, in fact the most important system, the system through which the others are principally reflected and transmitted. Once language was in man's possession, culture, his unique adaptive mechanism, became possible. Without language there could be no culture, and man remained hominoid; with language and culture, he could and did become hominine.

— Henry Lee Smith

* * * * *

One cannot understand even the rudiments of an important subject without knowing its higher levels' — at least not well enough to teach it.

Gilbert Highet

UNAMUNO'S CONCEPT OF WOMAN

SR. CARMEN MORALES, FI.

INTRODUCTION

Miguel de Unamuno is perhaps one of the most controversial literary figures in all Spanish literature. As a member of the so-called "Generation of 1898", his contribution to literature includes the essay as well as the novel, drama and poetry. But in all of Unamuno's works the ideas are so often repeated that sometimes to read them is boring and monotonous. However, strange as it seems, this continuity of ideas does not prevent our author from purposely using a great deal of paradoxes in order to maintain the interest of the astonished reader and awaken in him an uneasiness that motivates some kind of action.

Since Unamuno is an author of the end of the nineteenth century, logically, his conception of woman still maintains the model of life at home and the attitude of a beneficent center in the family that were typical of his time. But besides this ideology one can find in our author special circumstances that have influenced his peculiar thoughts about women. For instance, Unamuno lost his father in early childhood and became the typical child for whom only his mother's influence and love counted in life. Maybe because of this circumstance and because his wife, Concha Lizárraga, was a type of woman eminently maternal, all the women that were described by don Miguel show very distinctly the characteristic of maternity which clearly influences their lives.

WOMEN IN UNAMUNO'S LIFE

The influence of Unamuno's mother is not yet well known. It is not easy to study it since we do not have many direct references in his works. But it is very clear that doña Salomé Jugo as a young widow gave herself to the care of her children with a passionate love that was exclusively for them. However the manifestation of

her love was not of the external type. According to her own son's words: "She loved silently, without effusion nor too many demonstrations of kisses and caresses."(1) This is what Eduardo Ortega y Gasset implies when he comments:

> I think that in Unamuno's spiritual formation the character of his mother should have had a big influence in order to give him such an exterior gruffness, such a tendency to essential and skeletal constructions.(2)

That Unamuno understood this kind of love is without doubt. He himself proves it when, writing to his friend Pedro de Mugica he states: "I owe to my mother's teachings the best of what I have."(3)

I believe that it was in the light of his mother's affection that don Miguel started elaborating his maternal conception of woman. But he was confirmed in it by the knowledge and experience of another love: that of his wife with whom he spent his whole life. Concha Lizárraga was a simple and quiet woman. Perhaps her education and her culture were not very high, but she had a great capacity for affection and a natural intelligence to complement this.

Camilo José Cela wrote that "for Unamuno his wife was always a mother—his mother and his children's mother."(4) This is very clear at a particular moment of our author's life—the 1897 crisis. It seems that at that time, after a spell of religious agony one night, while already in bed, he suddenly began to weep despairingly. The spontaneous reaction of his wife who embraced him and asked him: "What's the matter, my son?" was for him the best comfort. He was so deeply moved that afterwards he mentioned it constantly. So, for example, he writes to Pedro Corominas in 1901:

> I will never forget how once, when I was in a crisis that now almost shames me, she seeing me cry, exclaimed: 'My son!' She called me son and it must be true, I must be her son, her spiritual son in almost everything good that I have.(5)

Concha's reaction to Unamuno's crisis was not a sporadic event. It is rather the revelation of a permanent aspect that was her inner driving force. As Rudd points out very opportunely:

> Miguel was always Concha's first and foremost concern; she watched over him as a mother over a child, humoring his whims, cooking his favorite dishes and comforting him in his times of distress.(6)

Unamuno himself affirms that when his beloved wife died, it left him very much alone:

> She was my real mother. And my children's. She was more, much more than my love, she was my companion. She went to be with God, the one that weaves history. And—in whatever way He does it—may God take her in his hand. When she went to be with God she did not take away just a part of my life but the heart of it.(7)

So it is not strange that from his concrete life situation, between his widowed mother and his maternal wife, there arose the Unamunesque conception of woman.

WOMEN IN UNAMUNO'S WORKS

FIRST PERIOD

Within the Unamunesque pattern of woman, which makes her a potential mother in every situation, there are three types very clearly established. In the first period of Unamuno's productions (more or less from 1897 to 1918) we find a kind of woman who is an actual mother but who remains passive, happy with the possession of a child who gives her fulfilment but whose future she makes no attempt to shape. She happens to be in the house as a passive spectator, enjoying the presence of her child and suffering when he is not there.

If it is true, as Helene Deutsch establishes, that "passivity is the central attribute of feminity",(8) then the feminine characters of don Miguel's first period are really and truly feminine. However, sometimes they appear in such an inactive way that they are more caricatures than real women. At least, real modern women!

It is not possible in this paper to study with great detail each one of the feminine figures that answer to the given characteristics. So I will take just one character, the Marina of *Amor y pedagogía*, written in 1902. This novel states the clear dilemma of love struggling against science. The masculine character, Avito Carrascal, is wholly

immersed in a scientific pursuit. He marries Marina only to have a son through whom he can prove the good results of his theories.

Marina is the kind of woman who, oblivious to all else, lives only for her children. She does not understand any of her husband's ideas but her motherhood consoles her in the strangeness of a house where only reason and material experiments have value:

> What a silent and furtive scene when, in one of the rare moments that the father leaves them alone, the mother takes her son, embraces him and without a word holds him thus in her arms, looks into empty space, and covers his face with kisses![9]

If Marina is an apparently insignificant character, she is not so to her son who loves her deeply. So, when he kills himself in despair, his last thought goes to his mother: "Goodbye, my mother, my ghost! I leave you in the world of shadows."[10]

Even more significant is the end of the novel when Avito, having lost all his false security through the failure of all his plans, goes to his wife like a child. Then, in a perfect paraphrase of our author's dearest moment in his life, she

> takes his head, presses her trembling hands upon it, kisses his already feverish forehead and shouts from the bottom of her heart: "My son!"[11]

Even a passive type of woman like Marina has a maternal instinct within her. But it is very important to point out that her last feminine reaction is simply a portrayal of that of Concha Lizárraga, Unamuno's wife, several years before. Unamuno will always repeat an impression that has profound roots in his heart: that of the mother-wife that has, to the end, the value of refuge for the anguished husband. Or, as Sedwick notes, Concha

> was *woman* to her husband: *woman*, the symbol of motherhood. Was not Concha the model for all of her husband's literary portraits of women?[12]

However I want to point out that, in my opinion, the "Concha image" that produces the feminine characters of the first period are not yet pure. No doubt Unamuno attached to them some characteristics that are more properly his own than those of his wife's. For

example, a kind of sadness that makes them always unhappy and anxious for something which they do not know. But it is well known that Concha Lizárraga was a really optimistic and happy woman, very sure in the possession of a religious faith that her husband was always looking for. Even though she remained passive with relation to don Miguel's ideas, she never gave the impression of an apathetic person as do most of the feminine characters of our author's first period.

SECOND PERIOD

In the second period of Unamuno's work whose beginning I put toward 1920, a new type of woman appears: the possessive one, that is, one that governs other people's lives in such a way that she inhibits all their free activity. At first sight it seems that it is a completely new and different image, but I believe that it is just the same one in a new situation. Most of the women of the second period are childless. They cannot have children of their own, so they *need* to have somebody they can love in a motherly way so badly that they become despotic rulers over all the persons they meet. After all, they are just examples of how deep in a woman's heart is the need for children, so deep that if she cannot fill it she will almost go to the extremes of desperation and madness.

Perhaps the most significant figure of this period is Rachel of the short story *Two Mothers*. She is a widow with a lover, don Juan. Because she is unable to have a child she conceives a plan to satiate her thirst for motherhood: her lover will marry a young girl and the child they will have will be hers. As Villarrazo notes:

> Rachel wants to be a mother physically, she wants a fruit of her womb, flesh of her flesh and blood of her blood. But when she faces the reality of her sterility she resigns herself to the child of her lover. Her lover is a toy in her hands, it can be said that he is her "creation".[13]

While the child is not yet born, Rachel has to content herself with don Juan whom she treats tyranically, more like a son than a lover; but when a little girl comes into her life her maternity shows signs of a mad exaltation:

> And she went, took the child and started to embrace her and afterwards she kissed her with such frenzy that the new mother felt her heart melt in her chest.(14)

How can we see Concha's image in this kind of woman that is so different from her? Maybe we are witnessing a new kind of homage that Unamuno payed to her by contrast: picturing the anti-Concha, the selfish character that forgets others' lives in order to fulfill her own. Besides, we cannot ignore that in describing this kind of woman, as in every one of his characters, Unamuno could not help but project his own disquietude regarding immortality in a new way. This is why Mario Valdés points out:

> The most emotional expression of this need to survive in others comes with the theme of motherhood, both spiritual and physical. Such women as Tula, Raquel, and Soledad feel the need of surviving from the ***sima*** of frustrated re-creation through children.(15)

Once more Unamuno, interpreting the maternal instinct that was a reality in all the women he knew, translated it in the light of his own anguish and worry, that is, the tremendous need for immortality.

THIRD PERIOD

Finally, in Unamuno's last novel, *San Manuel Bueno y Mártir*, written in 1931, a new type of woman emerges, the one that I would call the maternally mature one, who is neither passive nor possessive but wisely situated in the middle.

So Angela in the above mentioned book is a smart young girl who gives herself with the same disinterest as the noblest of mothers, but does not ask for anything in return. As Eleazar Huerta says, "she really assumes a maternal attitude before the saint and wants to protect him as if he were her son."(16)

Our protagonist is able to find many ways to help the poor don Manuel, torn between his duty as a priest and his doubtful faith. However she will always respect his freedom in the most gracious manner and she will never dare to enter his inner sanctuary more than he allows. Or, as Huerta writes:

> Very human and very feminine, Angela didn't judge Lázaro and much less don Manuel from the moment she knew the truth. She simply cried; she maintained herself in their love.(17)

To me the figure of this young girl is the most exact reproduction that Unamuno ever wrote of Concha Lizárraga, his wife, as if finally, after several attempts at picturing her, he succeeded. In the first period, the feminine characters of his works were perhaps too shadowy in their passivity. The second group had too strong a wish of possession that did not accord with Concha's ways. But Angela Carballino had everything in just the right proportion, and like Concha, the actual woman, she meant peace for the soul of a tormented man. Her strong faith was the support of one that could not believe as firmly as she. Is this not significant?

> The course of Unamuno's religious faith was tortuous and complicated; not so Concha's. Her faith was simple, unquestioning and true, a bulwark indeed for her tortured Miguel.(18)

So it cannot be denied that Unamuno in his last novel, while he pictured himself as the masculine character, retraced lovingly the feminine figure that shared his life and was always for him a shelter of peace and comfort.

CONCLUSION

It is true that Unamuno's feminine characters do not have many definite traits. Many critics point this out but nobody does it more clearly than Sedwick when he says:

> Many of Unamuno's female literary creations seem artificially drawn, because in his insistence on their "realidad intima" he often over-intensifies them to the extent that they lack some of the other complexities of the feminine point of view.(19)

However it is not possible to doubt that for our author, motherhood is the only important trait that really counts in women. In his own words: "Love is the greatest characteristic a woman has and at the bottom of this love there is always maternal compassion.(20)

Why does don Miguel have such a point of view? Perhaps because all the women he knew were of that type. Perhaps because

during all his life he was a "big child". Beysterveldt agrees with this idea when he says:

> It is evident that between the child and the man Unamuno, the division was never complete. The bonds that tied Unamuno's life so closely to his spouse's have the maternal imprint. At the bottom of the Unamunian personality there is something childish.(21)

If this is true, it is easy to understand how our author, torn by anxiety though apparently a strong man, kept always in his heart an infantile need of help. Or, using Anguinaga's words: "In the fecund mother that was his wife, Unamuno went back to that childhood where the only care was to let oneself be rocked into unconsciousness."(22) Only in this way could he fight all his life, because when the combat was too persistent or too strong he always had Concha's maternal shelter in which to rest and take new strength.

Perhaps for this same reason Unamuno who went ahead of his time in all other fields lagged behind only in his concept of woman since he had no clear vision of how woman could in the future open for herself new fields together with men. And this is precisely what is most intriguing in his concept of women: that in this matter he allowed himself to be held back by the religious tradition of his country although he daringly looked forward into the future in so many other things.

NOTES

(1) Eduardo Ortega y Gasset, *Monodiálogos de don Miguel de Unamuno*, (New York: Ediciones Iberica, 1958), pág. 145.
(2) *Ibid.*, pág. 148.
(3) Miguel de Unamuno, *Cartas Inéditas*, (Santiago de Chile: Zig Zag, 1965), pág. 99.
(4) Camilo José Cela, *Cuatro figuras del 98*, (Barcelona: Aedos, 1961, pág. 23.
(5) Joan Corominas, "Correspondence entre Miguel de Unamuno et Pere Corominas", Bulletin Hispanique, LXII, (enero-marzo 1960), pág. 44.
(6) Margaret Thomas Rudd, *The Lone Heretic*, (Austin: University of Texas Press, 1965), pág. 75.
(7) Corominas, op. cit., pág. 64.
(8) Helene Deutsh, *The Psychology of Woman*, (New York: Grune and Stratton, 1944), pág. 225.

(9) Miguel de Unamuno, *Amor y Pedagogía*, (Buenos Aires-México: Espasa-Calpe Argentina, 1952), pág. 71.
(10) *Ibid.*, pág. 125.
(11) *Ibid.*, pág. 126.
(12) Frank Sedwick, "Unamuno and Womanhood: His Theater". *Hispania*, XLIII, (sept. 1960), pág. 312.
(13) Bernardo Villarrazo, *Miguel de Unamuno*, (Barcelona: Editorial Aedos, 1959), pág. 108.
(14) Miguel de Unamuno, *Dos Madres, Obras Completas*, t. II. pág. 1011.
(15) Mario J. Valdés, *Death in the Literature of Unamuno*, (Illinois: University of Illinois Press, 1964), pág. 167.
(16) Eleazar Huerta, "San Manuel Bueno, Novela Legendaria", *Atenea*, CLVI, (oct.-dic.), 1964), pág. 46.
(17) *Ibid.*, pág. 48.
(18) Rudd, *op. cit.*, pág. 76.
(19) Sedwick, *op. cit.*, pág. 309.
(20) Miguel de Unamuno, *Del Sentimiento Trágico de la Vida*, (Madrid; Espasa-Calpe, 1967), pág. 107.
(21) Beysterveldt, "Algunas Notas sobre el Sentimiento del Amor en Unamuno", *Punta Europa*, L, (1960), pág. 78.
(22) Carlos Blanco Aguinaga, *El Unamuno Contemplativo*, (México: Publicaciones de la Nueva Revista de Filología Hispánica, 1959), pág. 121.

烏 那 穆 諾 之 女 性 觀

SR. CARMEN MORALES, FI.

摘 要

Miguel de Unamuno 是西班牙的一位著名作家屬於所謂的九八年代，生於十九世紀下半葉，是一位思想境界的先驅。但是由於西班牙在傳統上一直受到宗教的束縛，所以他對於女人的觀念也仍然包括了十九世紀的傳統因素。對於這個概念的建立，無疑的，作者個人的經驗則全是因其母及其妻的關係而來。

因此可以說在他所有作品中，所描繪的女性典型多多少少都是涉及到他在一生中所最熟識的人。

女性對 Unamuno 來說只是，也僅僅是母親而已，其他的角色對他天性來說則都是不相符合的。

ADVICE TO GRADUATE STUDENTS IN SEARCH OF A THESIS TOPIC

JACK DEENEY, SJ.

After struggling uphill through thickets of tests and term papers required for course work, graduate students face certain cliff-hanging examinations (pass-fail) called comprehensive, general, or qualifying. Having scaled those dangerous summits, they lift their weary heads only to find that

> those attain'd, we tremble to survey
> The growing Labours of the lengthen'd Way,
> Th' increasing Prospect tires our wandring Eyes,
> Hills peep o'er Hills, and Alps on Alps arise![1]

The "Alps on Alps," in this case, are the final challenge to the graduate student; namely, his thesis or dissertation.

Recently, a graduate student who was just beginning her thesis under my direction startled me by asking, "Why write a thesis? Why not simply take more courses or read on one's own and then discuss everything with a board of professors?" There are obvious advantages to such a proposal and, as a matter of fact, many universities have done away with the thesis requirement on the M. A. level, either substituting six units of course work or several papers.

I sympathized with her view but also pointed out that it omits a kind of training which the discipline of research and writing best supplies. I agree that an M. A. thesis does not have to be an entirely original contribution to the field; on the other hand, it should not be a mere accumulation of secondary sources, a scissors-and-paste exercise in plagiarism.

What then are the opportunities which thesis writing gives to the enterprising graduate student? In addition to the obvious benefits which any kind of disciplined academic writing brings, I would stress three advantages.

To begin with, the research necessary for thesis writing can both deepen and expand the graduate student's range of vision

because it exposes him to life's kaleidoscopic variety through original works of literary excellence as well as through scholarly comment from secondary sources. This, after all, is an important part of any liberal education ("liberal" means to liberate and make free); namely, to free oneself from one's own limited mind-set and external patterns of thought-control.

Secondly, if the scope of the thesis topic is broad enough, the student is forced to stretch his mind, as it were, in order to encompass the subject matter in all its ramifications. Furthermore, he must make use of a systematic research method of taking notes and organizing them around a clearly-defined central theme. He soon comes to realize that mere learning as an accumulation of facts is not adequate; real wisdom only comes when he is able to *relate* the facts around a core of solid principle. In this sense, the writing of a thesis is an important exercise for life: it teaches us to reduce and control the complex chaos of particulars to a kind of harmonious unity.

Finally, the writing itself satisfies the creative urge in us, the desire we all have to produce an extension of ourselves through time and space and to share it with others. On a more academic level, thesis writing has a way of forcing us to clarify lazy and fuzzy thinking, making us more honest in defending our point of view through objective and precise evidence rather than untried subjective impressionism; it also helps us to clearly express in a conceptual way what has already been deeply experienced within (though unarticulated) on a more intuitive level; finally, the thesis writer must be careful in choosing the specific and exact word to preserve subtle but significant nuances of meaning.

I should like to provide a context for the practical points which follow by quoting at length from *The Random House Guide to Graduate Study in the Art and Sciences:*

> The aim of the undergraduate college is primarily to provide a liberal education rather than a professional one. Students are exposed to all branches of study unless they can demonstrate mastery of a particular area at the time of entrance.....At the larger universities, and at some colleges, qualified seniors may

> enroll in seminars or in graduate courses. As they do so, they notice that the emphasis shifts from learning facts to interpreting and analyzing them. Examinations begin to be less factual, so that students are required to use critical and problem-solving skills and can no longer rely on reproducing lecture notes or textbook material. There are few quizzes; more research papers. At the best colleges this approach is introduced as early as the freshman year. On the other hand, some colleges never require students to be critical or imaginative. At such schools it is possible to be an honor student if one works hard and has a knack for memorizing, together with the ability to organize material intelligently for a paper or in an examination question. Graduates of such schools may have difficulties in adjusting to graduate work. Occasionally students who were not required to do any independent work in college find that they lack the ability to think and work independently. The skills required in undergraduate college are not in themselves sufficient to assure success in graduate school.(2)

The undergraduate is, in fact, something of an amateur; the graduate student more of a professional. Although literature should be preeminently an enjoyable pursuit on both levels, the master's degree candidate should be careful to distinguish between his halcyon days as general reader and his professional commitment as graduate student.

> Graduate or professional education involves a commitment to intensive study that few undergraduates have faced in college. It is possible to pass most college courses with reasonable intelligence, a good memory, adequate study habits, and a certain ability to express oneself fluently if not always in a profound or original manner. Many bright college students can begin a term paper a few days before it is due and produce an acceptable if not distinguished result. In graduate school, on the other hand, a student must be really committed to his subject. Graduate students are expected to work intensively to master the body of existing knowledge, and to be able to evaluate it critically. ...An essential quality sought by graduate faculty is a real enjoyment of learning and desire for knowledge.(3)

In short,

> graduate education has as its primary goal the training of scholars, teachers, and researchers: men and women who will not only transmit existing knowledge, but will actively contribute to such knowledge through research, analysis, and criticism. Such persons must have, first of all, critical minds; they must be trained in

> methods of research, and be thoroughly familiar with the existing body of knowledge in a particular field.(4)

Now that something of the graduate school context has been provided, we may proceed to the practical problems involved in how to go about writing a thesis. The following are just a few practical suggestions that might be of some help in selecting and beginning a thesis topic.

1) Don't go to a professor empty-handed and empty-headed with the words: "What shall I write my thesis on?" He is neither wetnurse nor encyclopedia; don't expect him to be omniscient. Your prospective mentor should be selected on the basis of his special competence and interest in your chosen field.
2) You should not wait till your course work is completed and then begin to think of a thesis topic. On the contrary, you should be thinking of a thesis topic as soon as possible after you begin graduate school and, as much as possible, orientate your study and course work in that direction. The Bibliography and Research course can be a very valuable discipline for thesis writing.
3) Since an important part of graduate school training is to help you develop a habit of independent thinking and research, you should come to your thesis director with some kind of rough plan or plans.
4) If he approves the general idea, then you should work out a careful and detailed outline (neatly typed out) of what you propose to do. Narrow down your general idea to a very specific topic as soon as possible.
5) If you are at a loss as to what should be included in the outline, then sometimes it is worthwhile simply to "brain storm" and write down anything and everything that comes to mind without any attention to style or organization (in Chinese if it flows more quickly). After you have more or less covered the thesis matter as a whole, then sort out the pieces according to some kind of order. Analysis follows upon identification and classification. Beware of creating speculative outlines whose complete-

ness may comprehend all the complexities of your mind but are too ideal or far-reaching to be implemented in the practical order.

6) If the thesis director accepts your outline, begin gathering pertinent materials immediately; succeeding meetings with him (do have the courtesy to telephone in advance for an appointment) will clearly manifest that you have given serious thought to the following points.

7) You have picked a topic you are genuinely interested in and capable of completing in a reasonable time. It would be foolish to pick a topic about which no materials are available. Therefore,

8) You have already checked the various libraries (note the plural) and private collections and evaluated their resources (books, journals, microfilms, etc.) in reference to your plan(s).

9) This presumes that you have at least skimmed the materials available to you and taken a few notes as to their relative usefulness. Although one of the first steps in scholarship is finding out what has already been researched, the student's emphasis should be on primary sources (that is, the literary author's own works), not secondary sources (that is, critical commentary about the author).

10) You have prepared a bibliography which should contain your personal annotations whenever possible and arranged alphabetically (3×5 slips are useful for this purpose).

11) You have thought of the possibility of microfilming or xeroxing books or articles available abroad. (For xeroxing it is best to have a friend who has access to a large library and is willing to do this work for you.) If you have decided upon your topic early enough, the school or other institutions may order books for your use. (When your thesis is completed you might consider donating your books and articles to a library for the use of other students.)

12) If you are still at a loss for a suitable topic, go to the library,

look over theses that have already been written, and also skim through books and articles on subjects which interest you.

13) Some general divisions and topics that might stimulate your thinking are:
   a) What general period of literary history especially interests you? Modern? Ancient?
   b) English or American Literature? Comparative Literature?
   c) Genre study (novel, short story, drama, poetry, criticism, etc.)?
   d) Your approach may be extrinsic (historical, biographical, psychological, ideological, sociological, etc.) or intrinsic ("new critical," euphony, imagery, stylistics, symbolism, versification, etc.)
   e) Linguistics? Historical? Theoretical? Pedagogical?
   f) Textual criticism with a view to the future production of carefully edited texts.
   g) Translation of important texts both from and into English.

14) It is always to your advantage to make carbon copies of any work you present for your professor's inspection. Give him the original with a request that he add suggesions which you might discuss with him the next time you arrange an appointment. Do not expect him to give an immediate answer to your problems unless he has had the time to carefully inspect your manuscript.

15) It is a good idea to present all your work neatly type-written from the very beginning and according to strict form (*The MLA Style Sheet* is standard).[5] Although attention to form is something of a mechanical operation, taking special pains to present work that is perfect will pay large dividends later. This is not only useful because of the importance of an attractive appearance or the useful discipline of scientific exactness; it is also very beneficial to give a professor the luxury of a smooth reading so that he can concentrate on your content and not be distracted by careless and sloppy format details.

16) It has been said that a good part of genius is simply "an infinite capacity for taking pains." In thesis writing, this advice refers

more to the student than the teacher. Since you are on the graduate school level, you should not expect the professor to correct elementary mistakes in grammar, spelling, typing, etc. Always proof-read carefully (reading aloud to another will reveal inaccuracy and awkwardness) and double or triple check quotations from other sources. Paper clip pages together.

17) Plagiarism (copying the words or ideas of another without acknowledging the source) is a form of academic theft and absolutely forbidden. It is also a form of cheating and an insult to your professor.

18) A final bit of advice: Although your professors are generally available to provide guidance and encouragement, it is up to you to seek them out and get the necessary advice. Remember: "The only foolish question is the question unasked."

19) We may close with the words of Henry Seidel Canby in his book, *Thoreau:* "What Thoreau got, specifically, from Harvard was something quite indispensable. He was disciplined in the exactness, the accuracy, and the care for meaning which is the essence of scholarship. And, more important still, he learned to use a library.(6)

These observations are written from one professor's point of view. You should ask other professors about their opinions on the subject as well as make your suggestions from a student's point of view. If I receive enough comments, I will incorporate them into a more comprehensive form for a revised edition of "Helpful Hints."

NOTES

(1) Alexander Pope, "An Essay on Criticism," (11. 229-232), in *The Poems of Alexander Pope*, ed. E. Audra and Aubrey Williams, I (London: Methuen, 1961), p. 265.

(2) E. R. Wasserman and E. E. Switzer (New York: Random House, 1967), p. 11.

(3) Wasserman, 25.

(4) Wasserman, pp. 10-11.

(5) John H. Fisher, *et al.*, 2nd ed. (New York: *MLA*, 1970).
Other references that might be of some use in elaborating the above are:

George S. Hubbell, *Writing Documented Papers* (N. Y.: Barnes & Noble, Inc., 1941).
Ben R. Schneider, Jr. and Herbert K. Tjossem, *Themes and Research Papers* (N. Y.: Macmillan Company, 1961).
Kate L. Turabian, *A Manual for Writers of Term Papers, Theses, and Dissertations* (Chicago: University of Chicago Press, 1955).
(6) (Boston: Houghton Mifflin Co., 1939), p. 50.

Jack Deeney, SJ.
Tien Educational Center
Roosevelt Road, 3-202-2
Taipei, Taiwan, 107

爲研究生選定論文題目之進言

JACK DEENEY, SJ.

摘　　要

作者討論撰寫論文所獲得之種種益處。

隨後，作者簡述大學與研究所「研究」之不同。

末了，作者提出具體而切實的忠告，指示學生應如何選定論題，蒐集並構寫資料，以及接洽指導教授。

A LEVELING INSTRUMENT BASED ON DIFFRACTION PATTERNS

MICHAEL RICHARTZ, SVD.

INTRODUCTION

Well-known leveling instruments are the geodetic levels, precise, sensitive, but rather expensive devices for establishing horizontal lines or planes. Less familiar to scientists and even geodesists are the "optical leveling devices" because of their late development. Van Heel, in 1946, described an arrangement using optical interferences for establishing points on a straight line.[1] In 1961, he published a survey on "Modern Alignment Devices" wherein a zone plate was especially proposed as a diffraction plate for producing interference patterns.[2] In a recent paper still other diffraction plates have been suggested.[3]

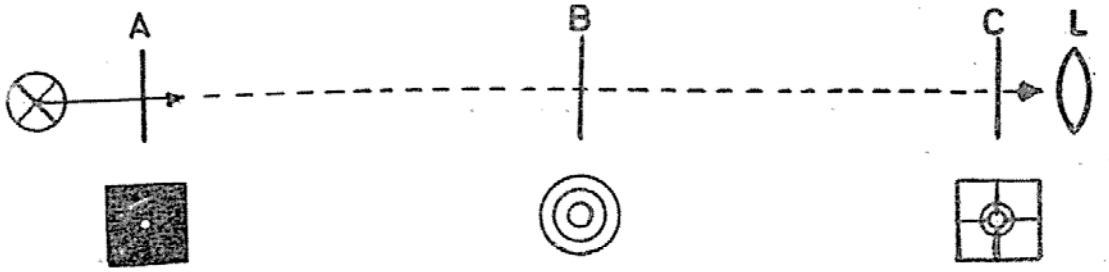
These alignment devices guarantee the adjustment of points in a straight line, but not their location in a "horizontal" line. Van Heel, in his survey, suggested a rather complicated apparatus for the horizontal alignment of surfaces; the writer has devised a simple optical level based on van Heel's alignment method.[4]

The leveling instrument explained in the following differs from van Heel's alignment device by the use of special diffraction objects instead of the zone plate. Furthermore, a change is made in the construction of the simple optical level to simplify the leveling of areas.

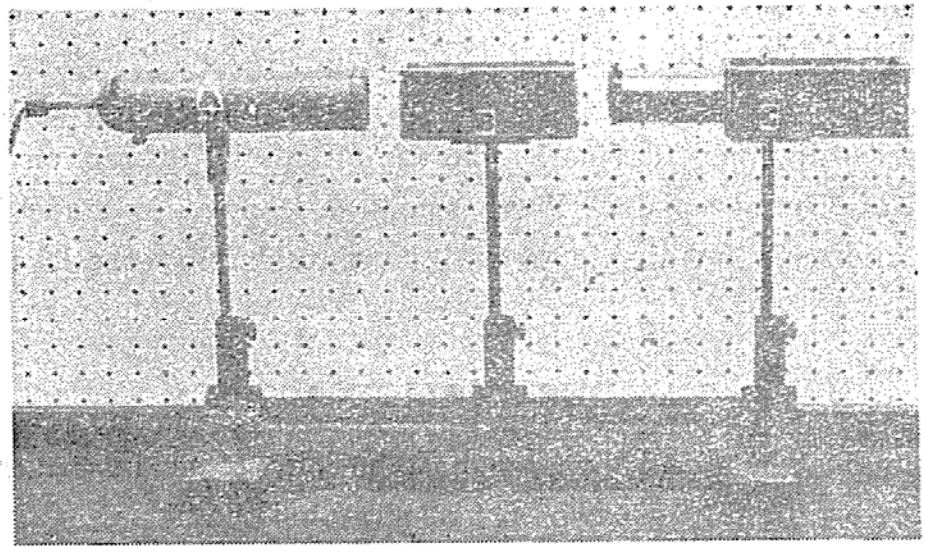
VAN HEEL'S ALIGNOSCOPE

Van Heel modified Fresnel's method of observing diffraction patterns for alignment purposes. He replaced the usual slit source by a point source and the diffraction plate of slits by circular, concentric openings, called zone plate. His idea has been embodied in a practical instrument, called "Alignoscope" (firm of Ahrend, Holland). It consists of three units: A, the light source; B, the zone plate;

C, the marker (Fig. 1). The light source is a pin-hole diaphragm illuminated by a lamp of white light (6V/5A). The zone plate is a system of concentric grooves, etched out in a thin metal plate on which grooves and rings have the same width. The ring-shaped marker with the interference pattern on it can be observed by means of the magnifying lens L. When the zone plate B is placed in the path of the light cone coming from the light source A, it will disperse the light in such a manner as to result in an interference pattern of colored rings, which pattern is present at any cross-section beyond the zone plate including the one at the location of the marker. By moving the marker with respect to the pattern, or vice-versa, the observer can establish alignment of all three units. Two of these units (A and B or A and C) may be regarded as fixed



(a)



(b)

Fig. 1. Van Heel's optical alignment device. (a) Diagram: C (with lens L) stationary; B positioned on points to be aligned. (b) Provisional housings for the three units.

points forming a straight line, while the third unit (C or B) will determine the relative position of the unknown point. For that purpose two micrometers (vertical and horizontal) are attached to C or/and to B.

ALIGNMENT PROCEDURE WITH OBSTACLES

There are several reasons for replacing the zone plate by an obstacle. When working in daylight the zone plate and the marker must be enclosed in a tube to avoid straylight. Furthermore, the manufacture of zone plates is precarious; van Heel, in his survey, gives some technical remarks on it. Finally, the objects of the optical level are themselves obstacles which produce diffraction patterns; why should they not be used also for determining a straight line?

With an obstacle (metallic ring or steel ball) instead of a zone plate the alignment procedure can be advantageously modified. Let us assume that points on a straight line P_oP_n should be aligned (Fig. 2). The light source A, as the first fixed point of the light ray, is set up at the endpoint P_o. According to van Heel's procedure the marker C with the magnifying lens L, as the second fixed point, is placed at the endpoint P_n, while the unit B, the zone plate, is used to align all other points of the line. In the modified procedure the obstacle B becomes the second fixed point and is placed at about the middle point P_m of the line. Thus the opening A and the center of B define the straight light ray for aligning all other points. The magnifying lens L alone is set up at the endpoint P_n and adjusted such that the diffraction pattern of B is centered on it. The alignment of the points between A and B as well as those between B

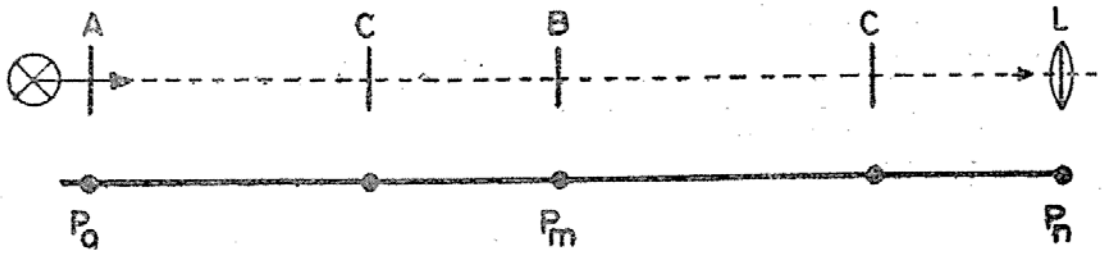


Fig. 2. Modified alignment method. B stationary; C (without L) positioned on points to be aligned.

and L is accomplished by the unit C which contains only the marker attached to the micrometers. For each point to be aligned the marker is moved by means of the micrometer screws until the center of its diffraction pattern coincides with the center of the diffraction pattern of the obstacle B. The coincidence is observed with the lens L.

The advantage of this arrangement is economical. The brochure of the Alignoscope mentions that "the distance between adjusting marker and zone plate should not exceed four fifths of the total measuring length." Otherwise the diffraction pattern is blurred and the accuracy of the alignment is greatly reduced. Furthermore, the size of the pin-hole diaphragm A and the choice of the zone plate (or obstacle) depend on the distance to be aligned in order to obtain a bright pattern at the marker. As a consequence, in van Heel's method the diaphragm and zone plate must be changed for every increase of 10 m distance. In our procedure a change is needed for every 20 m increase. For instance, when the distance is 20 m, obstacle B and marker C are always less than 10 m apart. In case that C is between A and B, the magnifying lens L may be near B so that the diffraction pattern of the cross hairs is still distinct.

OPTICAL LEVELS

Closely related to the alignment of straight lines is the leveling of areas, i. e., the determination of deviations of a surface from flatness. The principle of van Heel's apparatus for producing a horizontal "light plane" is as follows (Fig. 3). A parallel beam of light entering a sphere S gives rise to a rainbow formed after two internal reflections. The rainbow lies in a plane perpendicular to the incident beam. When monochromatic light is used, the borderline between the dark region and the region where light emerges is provided with a host of fine diffraction fringes one of which may be chosen for the alignment, say D-E. The collimator C renders the incident beam A parallel. This parallel beam must be accurately vertical, otherwise the light plane is not horizontal.

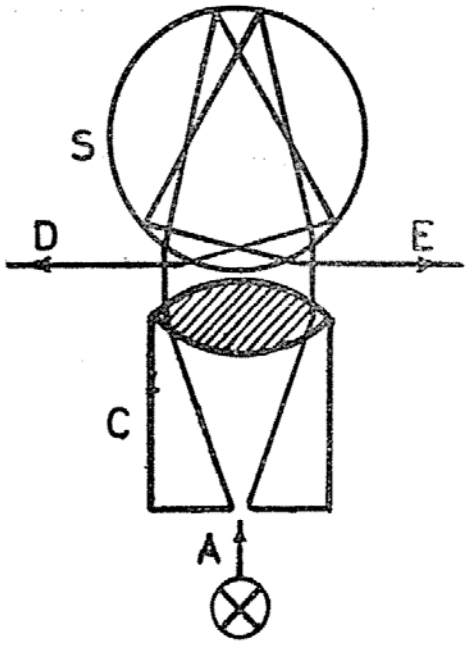


Fig. 3. Diagram of van Heel's horizontal "light plane."

The recently proposed simple optical level[4] is an accessory to the alignment method for rendering the light ray horizontal. This auxiliary unit consists of two diffraction objects (rings or balls) at the same level. To accomplish this a prolonged U-tube is filled with a liquid (water or mercury) on which the obstacles are floating (Fig. 4). The light source A and the marker C are adjusted such that the diffraction patterns of the obstacles coincide when observed on the marker. The light ray then is horizontal and a line on the ground below the light ray can be leveled. An inconvenience arises when an "area" should be leveled. For this purpose the optical level must be rotated along a vertical axis, and for each rotation the units

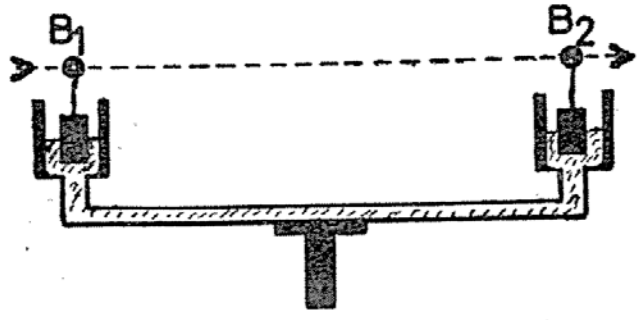


Fig. 4. Simple optical level. B_1, B_2, rings (inner diameter 6 mm, outer diameter 10 mm); their distance 40 cm.

A and C have to be readjusted.[4] To avoid this troublesome procedure the simple optical level has been modified.

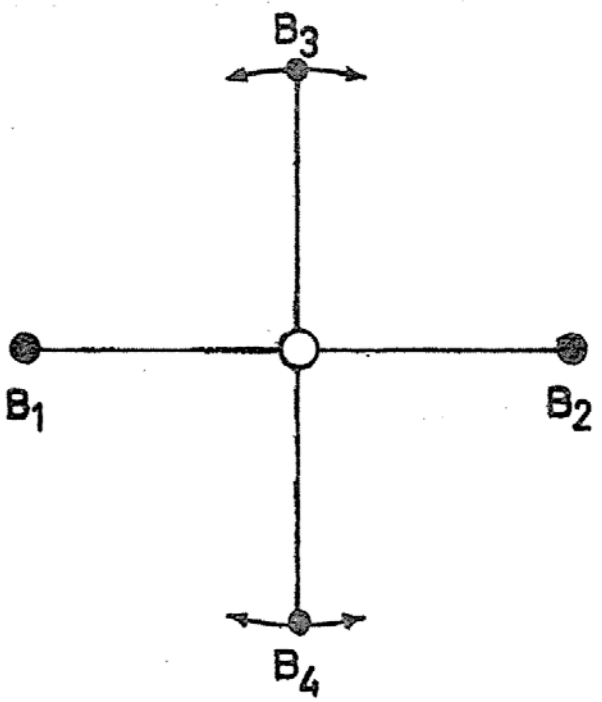
MODIFIED OPTICAL LEVEL

a) *Idea of the new level.* Suppose that a horizontal light ray has been established somewhere over the area to be leveled. The prolonged light ray could be reflected by an exactly vertical mirror and swept over the area in a horizontal plane by rotating the mirror about an exactly vertical axis. But it would be difficult to fulfill the exactitude of vertical direction. It might be easier, however, to have a third obstacle at the same level as the two of the simple level. Then the mirror can be adjusted such that the diffraction pattern of that third obstacle when in the prolonged ray will coincide with those of the two obstacles.

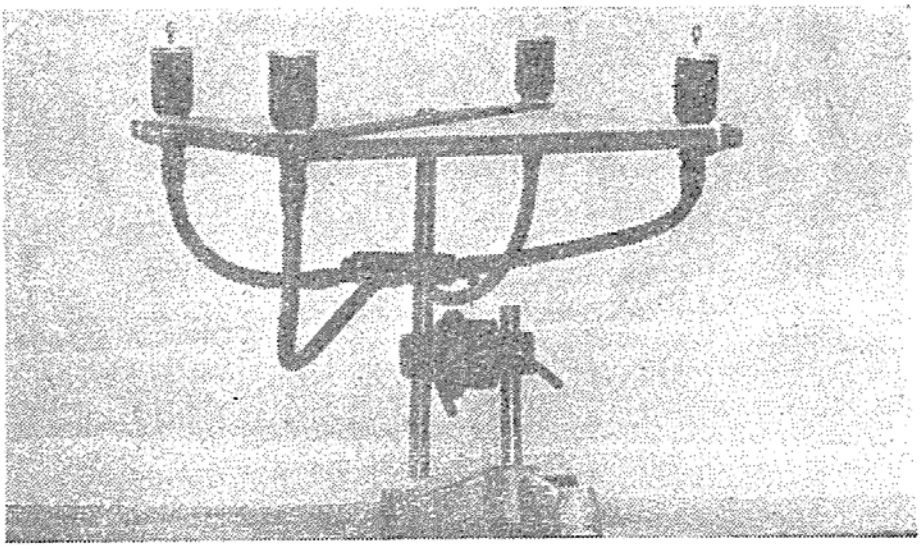
b) *Construction of the modified optical level.* A suitable arrangement is the combination of two simple optical levels, one fixed, the other rotatable around a vertical axis (Fig. 5). They are connected in such a way that the liquids in the four containers with the floating obstacles are at the same level. The form and size of the containers are insignificant. An essential condition of the construction concerns the floating objects; they must have the same size, the same weight, and the same height. A magnifying lens L or a plane mirror M can be attached to the platform of the apparatus in the prolongation of the fixed level.

c) *Leveling of an area.* Let us assume that a square area should be leveled. The set-up of the instruments will be as follows (Fig. 6a). The horizontal light ray should be conveniently arranged over one of the diagonals of the square area. Therefore, the unit A is placed one to two meters on the diagonal P_1P_2 outside the area. The optical level finds its place on the other side on the prolonged diagonal and with the obstacles B_1 and B_2 in the direction of the diagonal.

The first adjustment makes the light ray horizontal by moving A until the diffraction patterns of B_1 and B_2 coincide as observed with the magnifying lens L. To check whether the light ray is



(a)



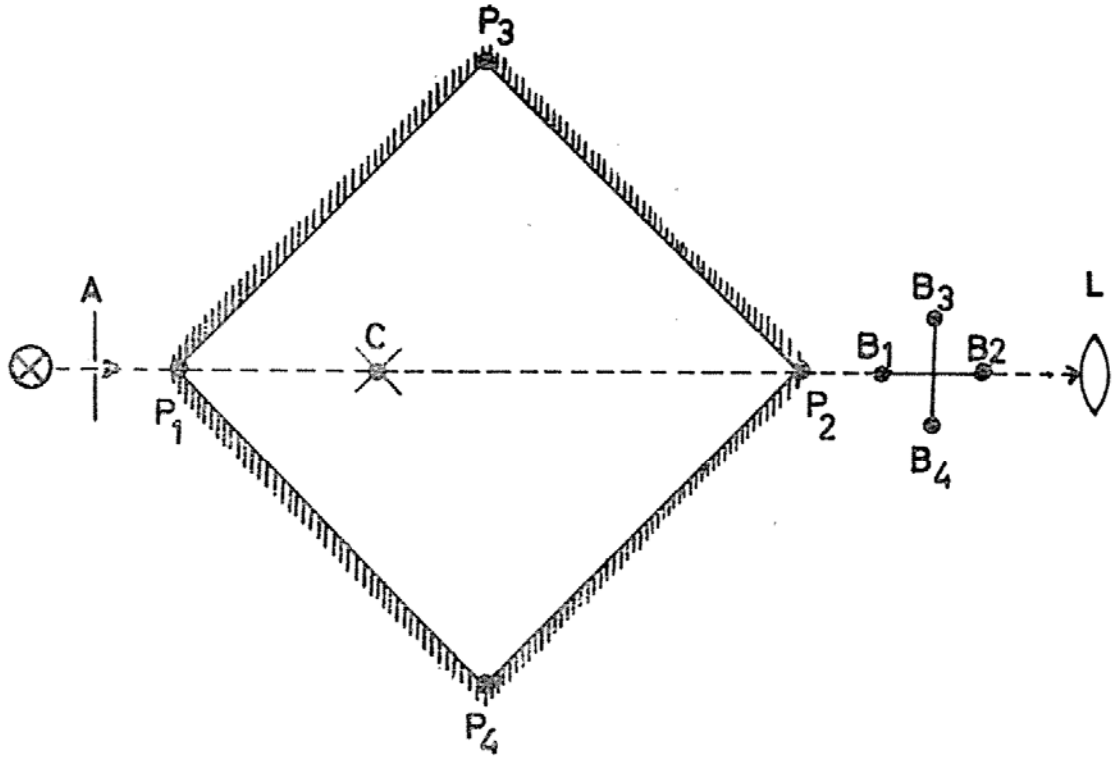
(b)

Fig. 5. Modified optical level. (a) Diagram: B_1, B_2 as in Fig. 4; B_3, B_4, balls (diameter 3 mm). (b) Provisional apparatus.

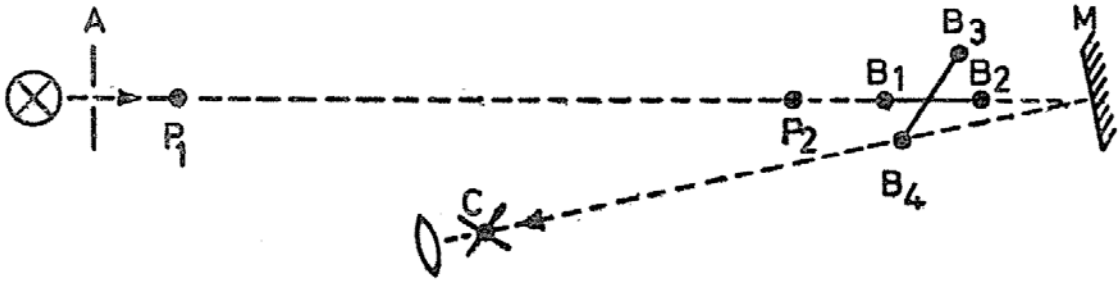
exactly horizontal the level will be rotated about its vertical axis through 180 degrees. If the patterns do not coincide anymore, B_1 and B_2 are not at the same height above the liquid surface. The reason may be a difference in the weight or height of the floating objects. The same control should be made with B_3 and B_4.

The second step brings about the leveling of the line P_1P_2. For this purpose the unit C with cross wires (marker) and micrometers is set up successively on the points to be aligned. On each point the marker is adjusted by means of the micrometer screws until the center of its diffraction pattern coincides with the center of the coincident patterns of the obstacles B_1 and B_2. The coincidence is observed by the magnifying lens L.

The third and final procedure utilizes the modification of the simple optical level for adjusting all other points on the area. There



(a)



(b)

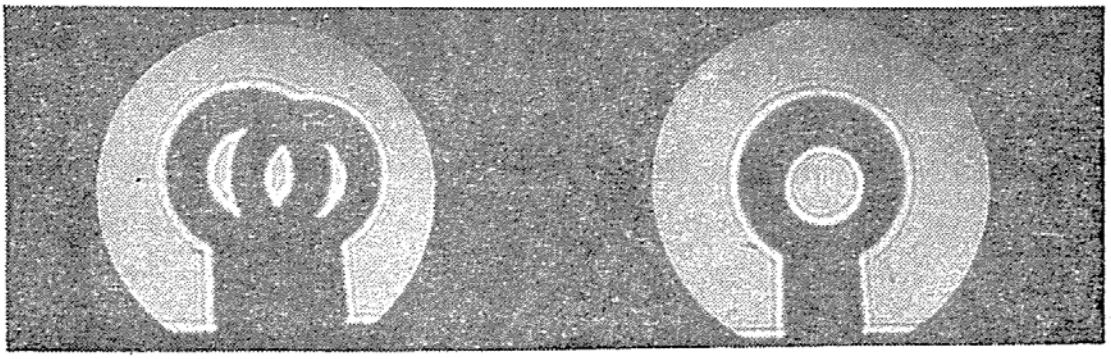
Fig. 6. Arrangement for leveling an area. (a) Leveling of points on the line P_1P_2. (b) Leveling of another point on the area of $P_1P_2P_3P_4$.

is a little change in the set-up: the magnifying lens now will be replaced by a plane mirror M while the lens itself will be inserted back into the unit C (Fig. 6b). Since the four obstacles have the same height, a rotation of the movable level B_3B_4 does not change the horizontal plane formed by $B_1B_2B_3$ or $B_1B_2B_4$. Let the obstacle B_4 (and therefore also B_3) have a definite position. The horizontal light ray with the two coincident diffraction patterns of B_1B_2 is reflected by the mirror M such that the light beam is incident on B_4. A little adjustment of M brings about the coincidence of the three diffraction patterns produced by B_1, B_2, and B_4, which can be secured by observation at any place of the prolonged ray with the magnifying lens. The prolonged, horizontal ray swings over this area. Any point of the area below the horizontal light ray can be leveled by placing the unit C in the light ray and adjusting the center of the cross wires until it coincides with the center of the three patterns. Since the obstacle B_4 can be moved in a semi-circle from B_1 to B_2 while simultaneously B_3 moves from B_2 to B_1, it is possible to bring the prolonged horizontal light ray over any point of the area provided level and mirror are in a suitable position. For instance, when in the diagram of Fig. 6a the lens L is replaced by the mirror the extreme point P_4 cannot be reached by the reflected beam passing B_4 until the mirror is moved nearer to the level or the level is moved farther from the point P_2.

DIFFRACTION PATTERNS

The obstacles (metallic rings, inner diameter 6 mm, outer diameter 10 mm) which were used as B_1 and B_2, produced diffraction patterns as shown in Figures 7 and 8.

Figure 7a presents the diffraction patterns of B_1 and B_2; they overlap a little and they show without doubt that the light ray is not exactly horizontal. The larger left image is produced by B_1 which is about 40 cm behind B_2. A little change in the position of the source A brings about the coincidence of both patterns as seen in Figure 7b.

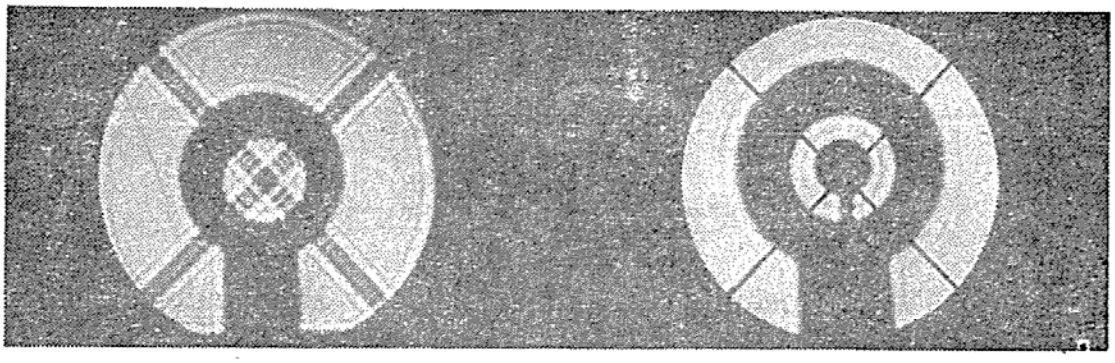


(a) (b)

Fig. 7.

Figure 8a shows the coincident patterns of B_1 and B_2 together with the pattern of the cross wires. It presents the alignment of a point on the line P_1P_2 (see Fig. 6a).

Figure 8b contains the diffraction patterns of B_1 and B_2 together with the pattern of B_4 in the center. (The obstacles B_3 and B_4 were steel balls of 3 mm diameter). The unit C with the marker (cross wires) is standing on the point which is just being aligned. As the picture shows, the marker must be adjusted a bit; it is too low, not yet in the center. The arrangement of this alignment is drawn in Figure 6b.



(a) (b)

Fig. 8.

CONCLUSION

An instrument is evaluated according to its appropriateness for the intended purpose. The usefulness of a leveling instrument depends on the accuracy with which an area can be leveled. A

comparison of the above proposed optical level with other levels is a task beyond the scope of this paper; but it would surely show that very accurate results can be obtained with the optical level. For special projects the optical level, simple in construction and procedure, will be more convenient than anyone of the expensive and complicated surveyor's levels.

NOTES

(1) van Heel, A. C. S.: *J. Opt. Soc. Am.*, **36**, 242 (1946).
(2) van Heel, A. C. S.: *Progress in Optics*, Vol. 1, Chapter 8 (1961).
(3) Richartz, M.: "Einfache Ausrichtungsverfahren mittels optischer Interferenzen," *Messtechnik*, **79**, 184 (1971).
(4) Richartz, M.: "Die optische Nivellierwaage für das optische Ausrichtungsverfahren," *Messtechnik*, **79**, 272 (1971).

ABSTRACT

Van Heel's optical alignment method uses the interference fringes of a zone plate to establish a straight light ray. The zone plate can be replaced by a simpler diffraction obstacle, such as a ring or a ball, for achieving the same purpose. The device can be used to make a simple optical level to determine a horizontal line, and it can be extended to make a leveling instrument that can be used for leveling surfaces.

摘　　要

Van Heel 光的排列法是用波帶片的干涉條紋以建立直線光，波帶片可以用簡單的繞射障礙物如球或環來代替而達成同樣的目的，這方法可以用未作簡單的光的水平以決定水平線亦可以擴充來做一種用於表面水平的水平儀。

In that distant future when linguistics is as fully developed as chemistry or physics and has become a science in which so much is known that the apprentice will need years of study before he reaches the edges of knowledge, linguists will look back at the twentieth century as the golden age of linguistics, and say with Wordsworth:

Bliss was it in that dawn to be alive,
But to be young was very heaven.

— Archibald A. Hill

THE AFLATOXINS: A REVIEW

SR. EVAMONICA JAMLANG, SSPS.

INTRODUCTION

The aflatoxins are a series of metabolites produced by certain molds, principally *Aspergillus flavus*. They were discovered through their toxic and carcinogenic properties. This, plus the ubiquitousness of *Aspergillus flavus* in nature, especially in tropical and subtropical soils, were the main factors that drew sudden and widespread interest in this group of metabolites. Since their detection in 1960, many of their physical and chemical properties have been brought to light and yet many more still remain obscure. The chemical structures of the known members of this group have been determined and methods for their isolation and identification have been developed. The fact that they fluoresce under ultraviolet light has made their detection easier to a considerable extent. However, the manner of their biosynthesis by the molds and the exact nature of their biological action still remain to be known.

HISTORY OF INITIAL DETECTION AND ISOLATION

It was reported in 1957 (Burnside *et al.*) that a certain kind of mycotoxicosis could be induced in swine and cattle by the ingestion of corn infested with *Aspergillus flavus*, but organized investigations which led to the identification of the aflatoxins did not develop until 1960. The incident which initiated this investigation was an outbreak involving the death of 100,000 turkey poults in England. The cause of the incident was not recognized at first and was named Turkey "X" Disease (Blount, 1961). Since no evidence could be found to indicate that the illness was infectious, toxicosis was suspected and the feed examined. Within a short period of time, reports concerning similar poisonings in calves (Loosmore, 1961), ducklings and chicken (Asplin *et al.*, 1961) and pigs (Loosmore *et al.*, 1961) appeared in the literature. A common factor in all these cases was Brazilian

peanut meal. Liver damage was involved in all cases. Symptoms were reported to be similar to ragwort (Senecio spp.) poisoning but this was ruled out when investigations did not reveal the presence of any pyrrolizidone alkaloid in the feed (Campbell, 1957).

Two groups of investigators (Allcroft *et al.*, 1961) were able to extract the toxic factor from the meal using methanol and to develop a biological assay for this toxin (Sargeant *et al.*, 1961a). A breakthrough was made within the same year when Sargeant *et al.* (1961b) traced the toxic factor to the mold strain *Aspergillus flavus* Link ex Fries which was one of the microorganisms isolated from the toxic groundnut meal. This became the origin of the name "aflatoxin". They were also able to obtain a crystalline form of the toxin which was later found to be still impure. The crystalline toxin gave a single blue fluorescing spot under ultraviolet light when applied on paper chromatograms and developed with *n*-butanol—5% acetic acid. They reported that fluorescence ran parallel to toxicity and proposed that fluorescence serve as a means of detecting the toxin.

In 1962, Nesbitt *et al.* worked with the toxin using alumina chromatoplates with 1.5% methanol in chloroform as developing solvent and reported two fluorescent spots under ultraviolet light. The faster migrating spot was named "aflatoxin B" and the slower travelling green one, "aflatoxin G". De Iongh *et al.* (1962) were the first to try column chromatography of the toxin and separated a single fluorescent band from a silica gel column which when applied to thin layer plates and developed with 2% methanol in chloroform gave several zones. The four main ones were named FB_1, FB_2, FB_3 and FB_4. Hartley and co-workers, in 1963, gave the present designations to the four principal members of the aflatoxin group. The two spots which travelled the fastest on thin layer chromatography plates and were colored blue were named B_1 and B_2 and the next two green spots, G_1 and G_2. Aflatoxins B_1 and G_1 are usually present in greater amounts than the other two.

Structure determinations had also been attempted by the last three mentioned groups of investigators but it was Asao *et al.* (1965) who succeeded in finding the structures of the aflatoxins. The pro-

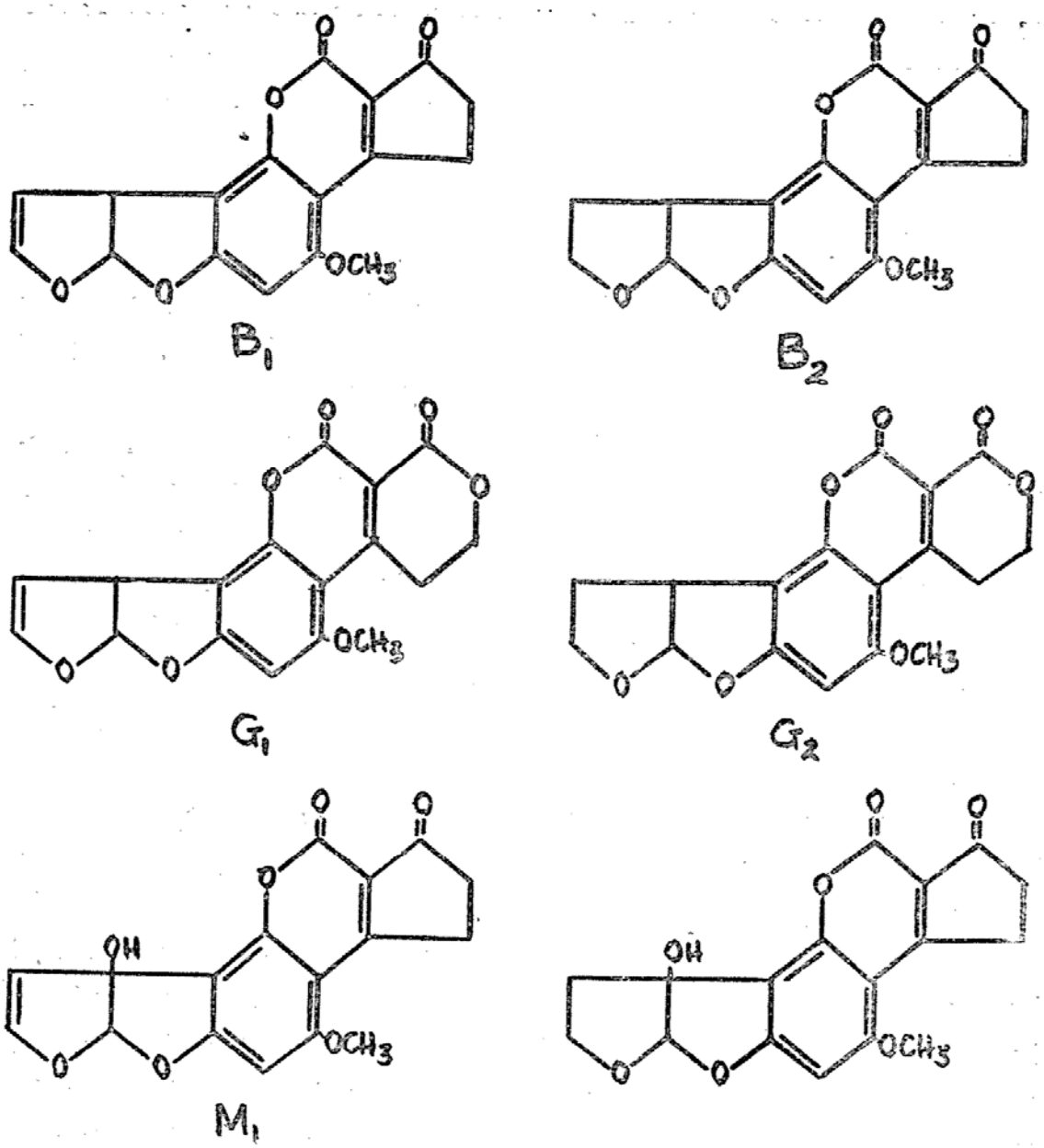


Fig. 1. Structures of the Aflatoxins

Table 1. Spectral and physical data on the aflatoxins[a]

Aflatoxin	Molecular weight	Melting point (°C)	Ultraviolet absorption (E)	
			265 m	363 m
B_1	312	268-269[b]	13,400	21,800
B_2	314	286-289[b]	9,200	14,700
G_1	328	244-246[b]	10,000	16,100
G_2	330	237-240[b]	11,200	19,300

a: Source: (Wogan, 1966, p. 460).
b: Decomposes.

posed structures are shown in Figure 1 together with those of the more recently identified aflatoxins M_1 and M_2 (Holzapfel *et al.*, 1966). The ultraviolet spectral data and physical properties of the four principal members of the group are given in Table 1.

NATURAL OCCURRENCE OF THE AFLATOXINS

Species of the genera *Aspergillus* and *Penicillium* make up the so called storage molds which attack crops after harvest. One of the most common members of the group is *Aspergillus flavus* which can even invade peanut pods in the soil (Diener *et al.*, 1965). Generally, however, the nuts are not invaded while in the ground because the shell and seed coat seem to afford a protective mechanism. Whether it is after harvest or while still in the soil, reports have shown that attack takes place in overmature, damaged or blemished seeds. Not all of the strains of *A. flavus* are aflatoxin producers but the greatest percentage of molds found to be so belong to this group.

A survey made by the Tropical Products Institute (Hiscocks, 1965) on the presence of aflatoxin in agricultural products have shown that 3.3% of peanuts have fairly high content of aflatoxin (0.25–1.0 ppm B_1 and higher), 75% give negative results and 21.7% have either medium, low or doubtful aflatoxin content. Other products besides peanuts which were examined included: wheat, maize, barley, oats, sorghum, rice, millet, cocoa and coffee beans, palm kernels, sunflower seeds, soya, cottonseed, locust beans, macadamia nuts and hazel nuts, most of which were visibly moldy. Of these, only one sample, that of cottonseed, showed undoubted positive results. This is an indication that the nature of the substrate is one of the factors that have to be considered in correlating mold invasion to aflatoxin production. Other factors include temperature and humidity plus the already mentioned damage sustained by the seed through handling. Seeds damaged through parasite attack were found to have less toxin than those broken from handling. This is perhaps due to microbial competition in the parasite-damaged seeds which prevents the growth of *A. flavus* (Ashworth *et al.*, 1965).

In the East, molds belonging to the *Aspergillus soyae* and *oryzae* groups have been used for producing fermented foods like shoyu (soy sauce), miso (fermented soybeans, barley and/or rice), sake (fermented rice wine) and amasake (saccharified rice). Investigations for the presence of aflatoxins in food materials were also extended to these products. Researchers of the Kikkoman Shoyu Company of Japan (Yokotsuka *et al.*, 1967) surveyed 73 strains of industrial molds and found that 30% of these strains produce substances whose fluorescence characteristics were similar to the aflatoxins, but further chemical treatment showed them to be substances other than aflatoxins.

CULTURAL REQUIREMENTS FOR MOLD GROWTH AND AFLATOXIN PRODUCTION

Natural substrates

Since the aflatoxin was first detected in peanuts, this was the first of the natural substrates employed to grow the mold in the laboratory in order to produce toxin for experimental purposes. Sterilized whole or crushed peanuts were used and incubated for periods ranging from seven days to three weeks (Sargeant *et al.*, 1961b; Nesbitt *et al.*, 1962; Diener *et al.*, 1963; De Iongh *et al.*, 1962 and Van der Zijden *et al.*, 1962). Wheat was also found to be a good substrate (Schumaier *et al.*, 1961; Asao *et al.*, 1963; Chang *et al.*, 1963; Armbrecht *et al.*, 1964). Carcinogenicity studies made by Newberne *et al.* (1964) used both peanuts and wheat which were inoculated with *A. flavus*, incubated for 7 days and incorporated into the diet of ducklings.

Armbrecht *et al.* (1963) tried producing the toxin in wheat, corn, oats, rye, buckwheat, rice, soybeans and peanuts and found variations in mycelial growth and toxin production.

A quantitative comparison of the abilities of different agricultural commodities to support aflatoxin formation was made by Hesseltine *et al.* (1966). They tried both the still and the shaken culture and used three strains of *A. flavus* which were known to be good

aflatoxin producers. The effect of methionine, a proposed aflatoxin precursor, was also investigated. In their results, rice gave consistently high yields whereas soybeans hardly produced any aflatoxin although it was noted that it could support mold growth. Methionine showed very little and variable effect on the quantity of aflatoxin produced. The concentrations of the individual toxins in the fermentation medium differed with both the mold strain and the substrate and no distinct pattern of their relationships could be seen. In all cases, the shaken cultures produced more toxin than the stationary cultures.

Semisynthetic media

Another step toward a better understanding of the nutritional requirements for aflatoxin production was the use of semisynthetic media. Codner *et al.* (1963) reported obtaining 100–200 mg per liter of aflatoxins in a medium containing corn steep liquor. Schroeder (1966a) followed this up by using *Aspergillus parasiticus* on Czapek's broth containing glucose instead of sucrose, with and without the addition of corn steep liquor. It was noted that unfortified Czapek's medium did not produce significant quantities of aflatoxin. Corn steep liquor was found to stimulate aflatoxin formation reaching a peak at 2% concentration of corn steep. Mycelial growth was also enhanced.

Davis *et al.* (1966a) tried Yeast extract-sucrose (YES) medium containing 2% yeast extract and 20% sucrose and studied the effects of varying the concentrations of each. Less aflatoxin was produced at lower (10%) or higher (30%) sucrose concentrations. The peak of mycelial growth was reached at 10% sucrose. On varying the amounts of yeast extract, maximum yield of aflatoxins was obtained at 2% concentration and that of mycelial growth, at 5% concentration. The effects of various additives, which included $ZnSO_4$, $MgSO_4$, KNO_3, KH_2PO_4, K_2HPO_4, K_3PO_4 and glutamate, were investigated, but none of these significantly increased toxin production.

Diener *et al.* (1966) inoculated a semisynthetic liquid medium (SMKY) composed of 20% sucrose, 0.05% $MgSO_4$, 0.3% KNO_3 and

0.7% yeast extract with isolates of *A. flavus* from peanuts, corn, feed and other crops. Some isolates did not produce toxin in this medium and some produced only B_1 whereas these same strains could produce both B_1 and G_1 in natural substrates. Only the isolates from peanuts could produce both B_1 and G_1 in the SMKY medium.

Synthetic media

The use of synthetic media had been tried early (Sargeant *et al.*, 1961b; De Iongh *et al.*, 1962; Nesbitt *et al.*, 1962; Armbrecht *et al.*, 1963) but reported low yields of aflatoxin discouraged its use for a time, when the primary concern was to produce large amounts of toxin for structure and property studies. Interests in the ability of chemically defined medium to produce aflatoxin have been resumed since then. The early experiments employed Czapek solution agar (Sargeant *et al.*, 1961b) Czapek Dox and Glucose Ammonium Nitrate media (Armbrecht *et al.*, 1963). No values were given for the yields obtained.

Adye and Mateles (1964) proposed a medium containing per liter: 50.0 g glucose, 3.0 g $(NH_4)_2SO_4$, 10.0 g KH_2PO_4, 2.0 g $MgSO_4 \cdot 7H_2O$, 0.7 mg $Na_2B_4O_7 \cdot 10H_2O$, 0.5 mg $(NH_4)_6Mo_7O_{24} \cdot 4H_2O$, 10 mg $Fe_2(SO_4)_3 \cdot 6H_2O$, 0.3 mg $CuSO_4 \cdot 5H_2O$, 0.11 mg $MnSO_4 \cdot H_2O$ and 17.6 mg $ZnSO_4 \cdot 7H_2O$. Comparative studies on the abilities of different carbon and nitrogen sources to support aflatoxin formation were made by Mateles and Adye (1965) using the above basal medium and by Davis *et al.* (1967) using a similar medium. Their results did not agree in all respects but both of them concluded that sucrose was the best sole carbon source. Davis *et al.* (1967) rated glucose equal to sucrose while lactose was reported to have no growth at all. Mateles and Adye (1965) obtained growth with all carbohydrates including lactose, but the latter gave one of the poorest yields of aflatoxin. In both reports, the best three carbon sources were sucrose, glucose and fructose. For the sole nitrogen source, they differed in the substances examined. Mateles and Adye (1965) found that the casamino acids produced the highest yields of aflatoxin although ammonia, glutamate and glycine also gave good yields. Davis *et al.* (1967) obtained their highest

yields with yeast extract and peptone. Among the amino acids, aspartate, glycine, glutamate and glutamine were the best.

Certain mineral elements were found to be needed in the medium. Nesbitt *et al.* (1962) mentioned earlier that zinc was involved in toxin formation. This had been verified by Mateles and Adye (1965) and by Davis *et al.* (1967). The elements Mg, Fe and Mo were also found to be necessary for aflatoxin production. The effect of Zn and Fe seemed to be on the growth of the fungus while that of Mo was on the toxin formation *per se*, without any effect on the growth. Magnesium exerted its effect both ways; a lower concentration being satisfactory for growth while a higher one was needed for toxin production. Lee *et al.* (1966) also found that Cd stimulated production and would increase aflatoxin yields in a zinc-deficient medium which otherwise gave only trace amounts or none at all. Barium was found to have an inhibitory offect on the germination of the conidia resulting in low toxin yields.

No chemically defined medium has yet been developed which could match the toxin production of more complex organic substances like yeast extract and peptone. There are probably other factors present in these substances such as vitamins, growth stimulators and particular combinations of amino acids which together contribute to better production.

ENVIRONMENTAL FACTORS AFFECTING TOXIN PRODUCTION

Temperature

Effects of temperature on *in vitro* production of aflatoxins have been studied by several investigators. Rabie and Smalley (1965) reported that maximum growth of *A. flavus* in Czapek's solution with 3% sucrose and 2% yeast extract occurred at 18°C and less at higher temperatures while production of aflatoxin B_1 in the mycelium was maximum at 24°C and that of G_1 at 30°C. No toxin was found at 18°C. In this work, examination for the toxin was confined to the mycelium but later findings have shown that 95–99% of the toxin was present in the filtrate.

Diener and Davis (1966) examined toxin production by *A. parasiticus* in peants in relation to temperature and found that the ratio of the amounts of B_1 to G_1 was affected by temperature, decreasing as the temperature increases from 20°C to 30°C and completely reversing at 35°C. Maximum production was at 30°C for both B_1 and G_1. At lower temperatures, G_1 was present in larger amounts while at higher temperatures, B_1 predominated. They also compared the production in a semisynthetic medium (SMKY) with that in peanuts using a strain of *A. flavus* and the liquid medium gave higher yields at all the temperatures used.

Schindler, *et al.* (1967), working with *A. flavus* on Wort media, reported that maximum total aflatoxin production occurred at 24°C while maximum growth took place at 29°C and 35°C. No toxin was produced at temperatures lower than 18°C and higher than 35°C.

However, Davis and Diener (1970) set the lower limiting temperature for aflatoxin production in peanuts and soybeans at 12°C and the upper limiting temperature at 41°C when the relative humidity is 99%.

At the optimum relative humidity of 97–99%, Diener and Davis (1967) found that aflatoxin formation in stored sterile peanuts inoculated with *A. flavus* will generally reach a maximum at 25°C for a 7-day storage period.

The last two mentioned groups of investigators confirmed the finding that the ratio of B_1 to G_1 varies with temperature, the maximum production of G_1 usually occurring at a lower temperature than that of B_1.

Schroeder and Hein (1967) found no significant difference in the relative response to temperature of peanuts, cottenseed and rough rice. As the temperature increased from 20°C to 35°C, the incubation period necessary to attain the maximum accumulated toxin decreased so that at 20°C, maximum yield was obtained after 8 days of incubation while at 35°C, peak yield was attained after only 3 days, although the maximum amount was less at the higher temperature.

Incubation time

The length of the incubation period will depend primarily on the temperature used. As has been previously mentioned, a higher temperature will need a shorter incubation time to reach the peak yield for that temperature (Schroeder and Hein, 1967). The amount of toxin present after two days in an autoclaved and inoculated sample of cottonseed, incubated at 35°C, was attained after 3 days by the sample at 25°C and after 5 days by that at 20°C. However, after 8 days, the amount of toxin present in the 20°C sample was very much greater than that present in the 35°C sample.

Several investigators have noticed a decline in aflatoxin concentration after certain lengths of incubation time (Schroeder, 1966a; Ciegler *et al.*, 1966; Schindler *et al.*, 1967). Schroeder reported that decline took place after 8 days in natural substrates using *A. parasiticus* and after approximately 5 days in Czapek's broth fortified with corn steep liquor. Ciegler *et al.* (1966) found that degradation of the aflatoxin took place after 72 hours in fermentors using *A. flavus* strains. Mycelial lysis and high aeration conditions (0.5 volume per volume per min. of air, 300–400 rpm, 30 psi back pressure) were necessary to produce this effect. Even strains which were known to be non-degraders (NRRL 2999—Ciegler *et al.*, 1966, M001—Mateles and Adye, 1965) could be induced to degrade toxin under these conditions.

In stationary culture, this decline of aflatoxin concentration took place only after a longer incubation period, even as long as two weeks in some cases, and for strains which apparently were non-degraders, no significant decline took place even after three weeks (Diener and Davis, 1966).

Aeration

It has been noted that shake cultures produce much more aflatoxins than stationary cultures (Hesseltine *et al.*, 1966; Mateles and Adye, 1965; Shotwell *et al.*, 1966). Aeration seems to be the contributing factor. However, Ciegler (1966) warned that too high an agitation rate favors conidia formation which results in little or no

aflatoxin production. Schroeder and Ashworth (1966b) also noted that shake cultures reached maximum growth earlier than stationary ones.

The use of fermentors did not give good results at the start (Mateles and Adye, 1965) but according to Ciegler *et al.* (1966) this is due to insufficient aeration. With the use of baffles and an agitation rate of 300 rpm, they were able to get good yields in 20-liter fermentors. The oxygen absorption was further increased by applying a back pressure of 5–30 psi. Hayes *et al.* (1966) obtained maximum yield at 9,000 ml/min aeration rate in 14-liter fermentors using a medium containing 2% yeast extract and 10% sucrose.

Moisture

This factor is of importance primarily for *in vivo* production of aflatoxins since it limits the amount of microbial competition and determines the extent of growth of the *Aspergillus*. Molds are known to require a lower water activity (a_w) than bacteria. It was found in peanuts (Ashworth *et al.*, 1965) that a kernel moisture content of 23 to 34% was optimum for aflatoxin production because this favored the growth of *A. flavus* over the other microorganisms present on the peanuts. Kernels with moisture contents of 38–42% were invaded by bacteria and other fungi within 10 days. Kernels with less than 12% moisture were not attacked by fungi at all.

Diener *et al.* (1967) found an optimum relative humidity of 97–99% for aflatoxin production in inoculated sterile peanuts incubated in controlled environment cabinets.

pH of the medium

The initial pH of the medium was shown by Davis *et al.* (1966a) to have no effect on the amount of aflatoxin produced by the mold. Regardless of the initial, pH, the final pH of the fermentation medium was approximately 4.0 after 6–8 days of incubation at 25°C. A low initial pH of 3.0 was found to restrict the growth of the mold somewhat but had no effect on the aflatoxin yield.

Mateles and Adye, (1965) reported that in 5-liter fermentors, using a basal medium proposed by Adye *et al.* (1964), aflatoxin production started after 2 days, when the pH had dropped to 3.0.

EXTRACTION AND QUANTITATION METHODS

The first solvent used to extract the aflatoxin from peanuts, on which it was first detected, was methanol (Allcroft *et al.*, 1961; Sargeant *et al.*, 1961a). Several methods and modifications have been developed since then to suit the different substrates on which the mold was grown. Other solvents employed were: acetone (Pons and Goldblatt, 1966), chloroform (Asao *et al.*, 1963 and 1965; Adye and Mateles, 1964), acetone-hexane-water azeotrope (Goldblatt, 1965) and water (Davis *et al.*, 1966b). In some cases defatting procedures were carried out using hexane in which the aflatoxins are only very slightly soluble. Except in the case where chloroform was the extracting solvent, a phase transfer to chloroform was usually done which was afterwards concentrated for thin layer or column chromatography. Crystallization of the toxin was done by adding petroleum ether to a chloroform solution of the toxins (Asao *et al.*, 1963 and 1965).

Determination of the quantities of the toxin produced was usually done by visual comparison on thin layer chromatography (TLC) plates using known concentrations of standards.

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ABSTRACT

The aflatoxins have aroused much interest during the last decade when this group of carcinogenic agents were found to be produced by the common contaminant of most agricultural products, *Aspergillus flavus*. This article reviews the history of their detection and the research findings concerning their nature and properties. In the East, where a number of foods are mold fermented, the conditions affecting the production of the aflatoxins command even greater interest.

摘　　要

當起癌物羣被發現是由於黃色塵狀菌（Aspergillus flavus）對農作物產品汚染而產生時，使得最近十年來，人們興起了對 aflatoxin 研究的興趣。這篇文章敍述它們被發現之歷史和有關它們的本質及特性之研究發現。在東方，有很多食物都是黴菌發酵的，所以在東方對於在什麼條件之下會影響 aflatoxins 產生之研究將會有更大的興趣。

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承印者　精華印書館股份有限公司
臺北市長沙街二段七十一號
電話：333276, 333429, 333707

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