THE American Society of Pharmacognosy News Letter

EDITORIAL

FUTURE SHOCK: A NEW NEWSLETTER?

You will note, that with this issue, the format of the Newsletter has changed drastically. It is hoped that with each further issue, the style and format will be further honed to develop a publication that will be easily read, enjoyable, informative and much less stilted than it has been in the past.

These changes have come about as a result of a review with President Floss of the Newsletter's format. It is hoped that these changes will allow the Newsletter to develop as it was originally envisioned, as a forum for discussion and an exchange of views between members in all countries and among those in academia and areas of endeavor. As you realize, the Newsletter currently depends on voluntary contributions for its content, and it will continue to do so with the inclusion of a call for information from individual members in each issue. However, a group of individuals have been asked to serve as general correspondents. These correspondents will represent various geographical areas in the U.S., Europe and Asia and will provide the editorial board with input to assure that there will be an influx of timely material that will be a much broader scope than is presently available to the Newsletter.

The Newsletter will be divided into sections and will include the following categories:

1) Editorials - By the Editor, President and selected guest editors. These editorials will hopefully reflect concerns of pharmacognosists which need to be aired and discussed.

2) Commentary Section - To provide a forum for areas of concern for which an editorial is not the proper forum: teaching improvements; suggestions, with disucssion, to the Society which can air major concerns; and news and views from the President and Executive Committee to allow dialog with the membership.

3) Letters to the Editor - To provide a forum for the membership to reflect their concerns with Society policy, to respond to opinions expressed in the Editorial Section, or to allow members the chance to provide commentary on subjects that they feel should be aired to the reading audience.

4) Meeting Reports - Brief reports on meetings to provide a synopsis of interesting invited speakers and presented papers that have a bearing on interests of some segment of the membership. These reports will hopefully capture novel developments and new trends surfacing at such meetings, particularly in workshops or invited symposia to which only a limited number of members have access.

5) Articles of Interest - These are to be short of formal journal papers and should make either informative or amusing reading for pharmacognosists. These could be short technical papers (alerting the membership to, or describing newer techniques) or simply broad interest articles.

6) Book Reviews - Very brief reviews of major books published that may be of interest.

7) Society News - A section where decisions of the Executive Committee can be presented, matters dealing with the Society's journal, future meeting plans, calls for papers and the like.

8) Review Alerts - Reviews of major review articles that have been published and should serve to aid the membership, particularly if they were published in a language other than English.

9) New Equipment - A section that will include brief descriptions, prices, manufacturer and pertinent data that will bring to the attention of the membership new equipment that the respondent has found useful in his/her work.

10) News and Notes - This will be very much like the current format and will include: new appointments, promotions, sabbaticals, deaths, new projects, grants funded and other personnel news, i.e. recent and upcoming activities of members.

It is hoped that the Newsletter will benefit by these changes. You will note that with the expanded format we are still very much dependent on the membership for input. I am looking forward to your comments, pro and con on these changes.

COMMENTARY

ADDRESS BY THE INCOMING ASP PRESIDENT HEINZ G. FLOSS, GIVEN AT THE ANNUAL MEETING OF THE SOCIETY IN SEATTLE, 1978.

As incoming president I want to take the opportunity to say a few words about the state of our discipline as I perceive it.

I think that anybody looking at Pharmacognosy with their eyes open can see that all is not well. Many Pharmacy schools have eliminated Pharmacognosy from their curriculum, and certain other schools are considering such a move. If you mention Pharmacognosy to faculty members of Pharmacy schools representing other disciplines you can often see a kind of frown appear on their faces which indicates that they do not have too much respect for this field. Such an attitude is of course quite hypocritical, but I think we are also well advised to try to analyze where it may come from.

One of the most shocking figures I have seen in recent months is a statistic on the publication record of ASP members which was compiled by Dr. Norman Farnsworth. According to this survey, of the ASP members residing in the U.S., and this number must be somewhere around 200-250, only 26 have published a scientific paper in 1976. In other words, about 80-90% of the U.S. members of our Society are scientifically inactive. This is really an incredible fact and itpoints right to the heart of the problem. The number of places in which a substantial amount of high quality research in Pharmacognosy is done is very small and it hardly exceeds a half dozen or dozen schools.

I have heard some people say "In the place where I am, you can hardly do any research with all the teaching and committee work that I have to do and with our limited facilities and equipment". My response to this is that if someone really wants to do research he will find both the time and the resources with which to do it. It maybe somewhat rough going initially, but if one persists and does some good work one can gradually change the environment to become more condusive to research, or if not, one will probably find opportunities to move to an environment that is more oriented towards scholarly work. I am saying this particularly with some of the young members of our discipline in mind, who I am afraid, may be all too tempted by some of the examples they see to accept such an attitude of resignation. If we want Pharmacognosy to be respected, every one of us has to contribute to its development as a science by engaging in creative scholarly activity in this field. I don't think anything else can replace this, no matter how many Pharmacognosists spend their time on local and national committees trying to defend the status quo.

To me Pharmacognosy is a discipline with an incredible range of opportunities for creative and at the same time socially rewarding research, and being someone who was not originally trained as a pharmacognosist, I think I can say this without being accused of blind chauvinism. Unfortunately many pharmacognosists seem to take a somewhat narrow view of the field. Although this is an important activity, there is more to Pharmacognosy than the isolation and structure elucidation of biologically active compounds from higher plants. For example, why has Pharmacognosy almost completely neglected the whole field of antibiotics? The field of immunological agents? The hormone field? After all, we teach these subjects and there is no reason why pharmacognosists can't or shouldn't also be involved in research in these areas. We have to look to the future and define new goals and frontiers. Areas like the genetics of microorganisms producing natural products, the development of economically viable systems for the production of higher plant constituents by single cell culture, or ultimately even by bacterial fermentations using recombinant DNA technology, for example, are all highly significant and legitimate research areas in Pharmacognosy. Again, many will respond "I cannot really do this kind of work because I am not trained for it, I don't have the necessary background". Well, one of the most marvelous attributes of man is the human mind's ability to learn, and there is no reason why this process should stop as soon as one gets out of school. If you want to

(Continued on next page)

COMMENTARY (*Continued from previous page*)

become familiar with a new field, go on a sabbatical to a laboratory which has the expertise in this field and learn, or go to some colleagues in your own institution who are knowledgeable in this area. The opportunities are almost always there, what it takes is desire to do the work and the determination to put in the effort.

If Pharmacognosy is not as respected as a scientific discipline as it should and could be, and if it may even be on the endangered species list, we have to seek the responsiblity for this above all among ourselves. We have to ask ourselves whether we are doing enough as scholars to advance our scientific discipline. The opportunities which this field offers are truly boundless, but whether they are realized depends entirely on each and everyone of us.

MEETING REPORTS

JOINT MEETING OF THE GESELLSCHAFT FÜR ARZNEIPFLANZENFORSCHUNG AND THE SECTION FOR MEDICINAL PLANT RESEARCH OF THE FIP.

REPORTER: Dr. Heinz G. Floss, Purdue Univ.

The Gesellschaft für Arzneipflanzenforschung jointly with the Section for Medicinal Plant Research of the FIP held an International Meeting on Medicinal Plant Research at the University of Münster on May 16-20, 1978. Participants from 20 different countries enjoyed the congenial atmosphere of the historic city of Münster and the splendid hospitality of Professor Freidrich and his colleagues who organized the meeting. One of the highlights of the meeting was the appointment of Professor Hegnauer, Leiden, as an Honorary Member of the Gesellschaft in a festive ceremony in the castle. In his subsequent lecture Professor Hegnauer, who is also an honorary member of the ASP, gave his thoughts on the past, present and future of medicinal plant research and stressed particularly the urgent need to collect and inventory the information on folkloric medicinal uses of plants before this knowledge vanishes and to use it in a modern scientific way to discover new drugs. The excellent scientific program which was organized by Professor Freidrich and Professor Leistner, focussed on three main themes: antibiotics and other microbial metabolites, alkaloids, and phenolic compounds, with major emphasis on biosynthesis. Professor Hartmann, Munich, in a lecture on the mode of action of cytostatic and immunosuppressive agents of the sesquiterpene class argued quite convincingly against the widespread view that these compounds exert their effect by reacting with essential thiol groups and illustrated for two examples, anguidin and ovalicin, their molecular mode of action. Professor Zähner, Tügigen, in a lecture "Ways to new antibiotics" emphasized the need for new and creative approaches to the screening for biologically active compounds from natural sources. An impressive example for the potential of new and imaginative screening procedures was given by Professor Fromner of the Bayer AG, who reported on the use of enzyme assays to screen for inhibitors of α-glycosidases from microbial sources. Such compounds were expected to slow down the breakdown and resorption of dietary carbohydrates, an expectation borne out by the results, and might thus be useful for the dietary management of diabetes. One agent from this program, BAY e 4609 (Naturwissenschaften 64, 535 (1977) is currently undergoing clinical trials. Two lectures by Professors Kleinhauf, Berlin, and Pape, Münster, on the biosynthesis of peptide and macrolide antibiotics completed the symposium on microbial natural products. The latter talk and a contributed paper presented the first biosynthetic studies on the novel boron-containing antibiotics, boromycin and aplasmomycin, which surprisingly, were found to be derived from acetate and methionine, but not propionate. The lectures on alkaloids dealt with the biosynthesis of ergot alkaloids (Floss, Purdue), isoquinolines (Staunton, Cambridge) and tropane alkaloids (Leete, Minneapolis) and with the chemistry of carbazole alkaloids (Chakraborty, Calcutta). The three lectures on phenolics covered the biosynthesis of K vitamins (Azerad, Paris), of phenylpropanoids in general (Towers, Vancouver) and of furanocoumarins (Brown, Peterborough). The North American continent was also represented by Professor Hutchinson

(*Continued on next page*)

MEETING REPORTS (*Continued from previous page*)

(School of Pharmacy, Madison), who discussed his synthetic work on secoiridoid aglycones.

Some timely comments were made by Professor Mothes, Halle, who chaired one of the sessions and stressed the importance of bringing scientists from related fields, i.e., chemists and biologists, into Pharmacognosy Institutes in order to broaden the outlook of pharmacognosy as a science. It was refreshing to note that the contributed papers covered not only topics which pharmacognosists traditionally have studied, but that there was some broadening of the scope to include subjects like antibiotics and fermentations. One hopes that, as in the United States, this indicates a trend which will continue in the future.

AMERICAN SOCIETY FOR MICROBIOLOGY ANNUAL MEETING.

REPORTER: James E. Peters, Univ. of Maryland

The annual meeting of the American Society for Microbiology was held at Las Vegas, Nevada, May 14-19, 1978. The 1978 meeting not only offered a fine scientific program but also a chance to lose a great deal of money at the gaming tables. This year's distinguished lecturer was Professor Otto Westphal, Max Planck Institut für Immunobiologie who presented the historical, chemical and biological aspects of his work with bacterial endotoxins. Of particular interest was the recent work being done on endotoxin chemical structure correlations with cytotoxic and immunomodulating activity. A highlight of the meeting was the Lilly award acceptance speech by Dr. David Botstein (MIT) who emphasized the need for more basic research and the lack of government responsiveness to addressing this problem. Dr. Botstein won the Lilly award for his work in bacteriophage molecular genetics.

This year's scientific reports indicated that major research efforts in academia and industry are being directed toward the structure elucidation and synthesis of immunological adjuvants. Muramyl-L-alanyl-D-isoglutamine (MDP) was reported to be the major structure in mycobacterial cells responsible for adjuvant activity and theactivity could be modified by synthetic manipulations of peptide and lactyl moieties on the parent MDP structure. Also further work with levamasole and tilorone was reported.

Several new antibiotic structures were also presented. The most notable were compounds ($C_{27}H_{36}O_7$) from Cyathus striatus (Basidiomycete) which demonstrated activity against fungi, anaerobic and aerobic bacteria. The 1979 ASM meeting will be held in Los Angeles and Honolulu, May 4-8, 1979. The Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) will be held in Atlanta, Ga., October 1-4, 1978.

THIRD INTERNATIONAL SYMPOSIUM ON THE GENETICS OF INDUSTRIAL MICROORGANISMS.

REPORTER: Marilyn K. Speedie, Univ. of Md.

The Third International Symposium on the Genetics of Industrial Microorganisms was held June 4-7, 1978, at the University of Wisconsin, Madison. The opening address entitled "The Many Faces of Recombination" was presented by David A. Hopwood of the John Innes Institute in Norwich, England. He outlined the very substantial advances in genetic knowledge and technique that have occurred since the last GIM symposium in 1974. Among the most noteworthy of these were the technique of protoplast fusion in procaryotic organisms which was developed by Dr. M. Okanishi, and the discovery of transposons, whch are pieces of chromosomes which can circularize and move around the chromosome and on and off plasmids.

Much of the interest in the genetics of Actinomycetes was in the role of plasmids in antibiotic biosynthesis. This topic was addressed in invited papers presented by Keith Chater of the John Innes Institute and Masanoro Okanishi of the National Institutes of Health, Tokyo, Japan. The biosynthesis in Streptomycetes of a largenumber of antibiotics appears to be plasmid-linked but in some cases it appears that the structural genes are located on the main chromosome with the plasmid responsible for some essential regulatory function. It was also proposed that plasmids are responsible for the resistance of antibiotic producing organisms to their own antibiotics.

(*Continued on next page*)

MEETING REPORTS (*Continued from previous page*)

Dr. Stanley N. Cohn presented a fascinating lecture entitled "DNA Cloning in Microorganisms-A Status Report" in which he described the techniques which have enabled scientists to incorporate a foreign piece of DNA into a bacterial plasmid and subsequently have the recombinated plasmid taken up by the bacterial cell, resulting in production of the gene product encoded by the foreign piece of DNA. Genetic engineering was also the topic for a panel discussion which dealt with governmental regulation of such research.

Another highlight of the meeting was a special address by Dr. Kenneth Raper of the University of Wisconsin who reviewed the tremendous amount of effort that went into the development of a high-producing strain of Penicillium during the 1940's.

At the banquet Dr. Arnold Demain presented a heart warming and well-deserved tribute to Dr. David Perlman for his contributions as Chairman of GIM 1978 and to industrial microbiology in general.

The meeting overall left one impressed with the tremendously rapid advances that are occurring in the area of the genetics of industrial microorganisms.

The fourth internation GIM symposium which will be held in 1982 should be very exciting indeed.

ARTICLE OF INTEREST

THE FOLLOWING ARTICLE WAS PRESENTED TO THE MEMBERS OF THE ASP AT THEIR ANNUAL BANQUET IN SEATTLE, WASHINGTON, AUGUST 13, 1977. IT IS PRESENTED FOR THE EDIFICATION OF THE MEMBERSHIP WHO MISSED THE ANNUAL MEETING AND THOSE PRESENT WHO WISHED COPIES OF THE TEXT.

SOME PROPOSALS FOR RESEARCH IN PHARMACOGNOSY - Varro E. Tyler, Purdue University

Many of you are probably wondering about the secrecy surrounding my presentation this evening. Actually, the program committee planned it that way purposely, because my words are intended for pharmacognosists and workers in the related fields of natural products, not for outsiders. If my topic had been announced in advance, the committee felt that it would arouse too much interest on the part of nonmembers of our Society, and because of the forthright, blunt, and critical nature of my remarks, this would have been unwarranted.

Yes, my remarks this evening are critical, not merely in the judgmental sense but in the unfavorable sense. For the topic assigned to me is "Research in Pharmacognosy", and a detailed survey which I have carried out during the past year has convinced me that this area of activity has fallen to such a low estate it is probably best characterized as inactivity. Generally,and there are one or two exceptions, very little research is currently being conducted in our chosen field. We all know this, even if we have not admitted it to others. Prominent leads in the literature, some of which have existed for decades, are not being pursued. Natural drugs with reported physiological activities of outstanding importance are simply crying to be investigated, yet these cries apparently go unheard and unheeded.

Therefore, your committee asked me to undertake a rather unpopular assignment and to do so in a setting where I could speak frankly and forthrightly to just our own members. My message is not one of gloom and doom, rather it is one of hope. For instead of being merely negative and criticizing you for not engaging in more significant research, I am going to point out to you some of the specific drugs encountered in a detailed analysis of the literature, which you will wish to consider investigating because of their outstanding potential. At this point, let me pause a moment to acknowledge the assistance of three postdoctoral fellows at Purdue University, Arthur G. Haas, Frederick N. Hansen, and Phillip Andrews who assisted materially with the extensive literature survey which made possible, in part, my report to you this evening.

One of the most potent geriatric drugs ever reported and one widely used by desert nomads has been almost totally neglected from the scientific point of view, possibly because it represents a product of animal, not plant, metabolism. This curious material known technically as melange, but commonly referred to

(*Continued on next page*)

ARTICLE OF INTEREST *(Continued from previous page)*

by the natives as spice, is produced in relatively large quantities by the Arrakis sandworm, Shai hulud. It is mildly addictive, when taken in small quantities, but severely addictive to human beings in oral doses exceeding 30 mg. per kg. of body weight.

Physically, it is an amorphous substance with a distinct odor and taste of cinnamon. Physiologically, its action is complex, producing an initial sense of euphoria followed by a distinctly increased level of sensory, some even believe extrasensory, perception. Native users of melange are dogmatic in their belief that its continued use confers longevity. All in all, it appears to ve a drug worthy of investigation, yet in the scientific literature, only three references to its production, collection, and use are found with absolutely no data on its chemical composition. A bibliography is appended to these remarks for those who wish to peruse the original references at leisure. At this time, I shall merely disclose that F. Herbert's classic publications on the subject appeared in 1965, 1969, and 1976. Surely a potentially useful drug of this caliber, known for more than a decade, should have attracted the attention of pharmacognosists before now, but such is not the case. At least none has yet published on this subject.

Herbert, who seems to have devoted more of his attention to the chronicling of unusual folk drugs than any other modern authority, has presented a few intriguing details concerning the physiological effects induced by an as yet unidentified species of filamentous fungus. This organism apparently is indigenous to some of the natural caves of the Santaroga Valley in California. It utilizes ordinary foodstuffs as a growth medium, and these foodstuffs when consumed produce rather remarkable effects due to the fungal metablites.

Changes in body chemistry include increased susceptibility to allergy, but this effect is counterbalanced by an acceleration in wound healing which has been estimated at from five to ten times normal. However, the principal effect of ingesting the fungus metabolite is marked sharpening of the senses which is best characterized as expanded awareness. This apparently is induced by an improved hormonal balance. Improved memory is perceived by the subject, but this requires actual verification.

L. Piaget stated in 1967 that a number of attempts have been made to isolate the active principle of the Santaroga Valley fungus, but it is highly unstable and has resisted analytical efforts. Its mode of action is likewise poorly understood. What little work has been done shows that it accelerates catalysis of chemical transmitters, particularly 5-hydroxytryptamine and serotonin, in the nervous system, but it is definitely without effect on the Golgi cells. Beyond these scant findings, the fungus is awaiting the attention of pharmacognosists and pharmacologists with open arms. Who will be the first to embrace it? Certainly scientific study of it would prove more fruitful than time devoted to such obscure natural drugs as radix pedis diaboli.

While some details of the two drugs just discussed can be found in the literature, there are many others to which mere tantalizing allusions are made. On-the-spot research and study would no doubt lead to interesting discoveries. The folklore of medieval Italy abounds in such fascinating references. One of them is a so-called "catalepsy" drug, the action of which, but not its identity, is described in some detail.

W.S. Speare has recorded F. Laurence's description of this drug's effect:

> "When this distilled beverage is drunk at bedtime it produced a distinctly depressed condition characterized by catatonia. Pulse and respiration are imperceptible and hypothermia is marked. There is a noticeable decline in blood pressure, the limbs become stiff and rigid, and the overall condition of the body resembles that of a deceased individual in every resptct. However, these effects are only temporary, and after approximately 42 hours, the subject arouses completely with no noticeable aftereffects."

(Continued on next page)

ARTICLE OF INTEREST *(Continued from previous page)*

Only one recorded administration of this drug was found during the literature search. An ancient manuscript reveals that in the case of J. Capulet the drug produced the aforementioned symptoms with the exception of the duration of action. This was somewhat in excess of the average forty-two-hour period and lead to a number of unpleasant complications. Since time this evening precludes a complete revelation, let me refer interested listeners to the appropriate reference.

Just as the ancient Incas had their divine plant, subsequently classified as Erythroxylum coca, or more commonly, coca leaves, so too did the ancient Egyptians revere another plant. Unfortunately, the mists of time have all but obscured the identity of this latter species. All that we know today is that it came under the divine protection of the Egyptian god Aman-Ra and was referred to in the ancient language as tara.

Extraordinary powers of physical resuscitation were attributed to the leaves of this plant. Three of them were said to be sufficient to maintain cardiac viability in an embalmed mummy, and nine leaves were sufficient to induce completely normal physiological activities in such a subject. Of course, no one today believes this literally. But there are still strange tales told in Egypt, and elsewhere, about the dedicated lover Im-ho-tep and the long and lonely vigil he maintained over the corpse of his beloved, the Princess Ananka, made possible by the ingestion of tara leaves.

With the intense interest shown in medicinal plants by modernday scholars in Egypt, and we all know the relatively large number of pharmacognosists in that country, it seems almost inconceivable that no proper botanical identification of tara leaves has ever been reported and that no chemical analysis of its active principle has been carried out. Is it any wonder that outsiders, especially the synthetic organic chemists, sometimes chide pharmacognosists with respect to their research propensities?

Another plant whose physiological action resembles tara, and the two may possibly share a close botanical relationship, is known as athelas or kingsfoil. Again, precise identification of the plant and its potent constituents awaits future study, but its effects are recorded in the technical literature in some detail.

Hobbitian legend tells us that when the great female warrior Éowyn lay dying after her epic battle with the black rider, Nazgul, King Aragorn came to heal her. He asked the attendants to prepare a simple bowl of hot water and requested the herbmaster to obtain a supply of the leaves of the plant known in pre-Linnean nomenclature, as Asëa aranion or in the common parlance, kingsfoil. Two of the fragrant leaves were crushed and placed in the steaming water. Although simple inhalation of the vapor is usually sufficient to effect a cure, in this case Éowyn's wounds were so severe that it was necessary to apply the aromatic infusion to her forehead. Needless to say, a complete cure resulted.

There is only one catch in the application of this legendary drug and that is implied in one of its common names, kingsfoil. The drug is effective only if prepares and applied by a king. So strong is this belief that Hobbit legend describes the cure as follows:

"When the black breath blows
and death's shadow grows
and all lights pass,
come athelas, come athelas!
Life to the dying,
In the king's hand lying!"

There are two relatively obscure drugs described in the literature which induce different but analogous effects, so I shall consider them together. The first of these came to public attention in late nineteen-century London when it was found to produce a kind of schizophrenia in the subject which can only be described as monstrous. The active principle was reported simply as a white crystalline powder, but it was probably an alkaloid because its bitter properties were masked by administration in a red liquid which, from the description, was apparently Elixir of Phosphorous colored with either cochineal or cudbear. The basic properties of the unknown alkaloid produced a change from red to purplish green in the coloring matter of the

(Continued on next page)

ARTICLE OF INTEREST (*Continued from previous page*)

tincture when admixed. Beyond this, little is known except that the compound must have been very difficult to purify, for successive lots had quite different physiological effects. In fact, the activity may have been due to a minor contaminant, not the principal alkaloid.

Stevenson tells us that the administration of this drug produces a dramatic reduction in the level of inhibitions in human beings accompanied by a complete change in personality analogous to acute manic schizophrenia with overtones of violent, sadistic paranoia. Such drug-induced symptoms subsequently begin to occur spontaneously and culminate in a state of acute depression with suicidal tendencies.

The other drug inducing schizophrenia is a mushroom, technically a basidiomycete. We cannot now be certain whether it is a species of the order of Boletales or Agaricales because different artists have portrayed the specimen quite differently. The description does indicate a fruiting body comprised of a broad pileus surmounting a sturdy stipe.

Ingestion of even a small portion of the pileus produces changes in the apparent preception of the size and shape of objects which are extremely dramatic, but otherwise correspond in quality, if not in quantity, to those reported by Vladimir Bogoraz as experienced by the Siberian Chukchee following consumption of Amanita muscaria. However, in the case of this unidentified species, Dodgson indicates exaggerated tendencies for the consumer to believe himself first taller than a tree, next shorter than a shoe top, so that we may assume the induction of a personality split resembling ambulatory schizophrenia. Surely both these interesting psychosis-inducing drugs are worthy of further pharmacognostical study.

Perhaps the most curious of all natural products in terms of its physical properties as well as its potential physiological effects is thiotimoline. Our knowledge of this interesting compound dates from 1948 when some of its properties were revealed in a series of two papers published by a biochemist at Columbia University, I. Asimov.

Thiotimoline was isolated from the bark of the shrub Rosacea karlsbadensis var. rufo. Its structure has not yet been completely elucidated, but it is known to contain at least fourteen hydroxyl groups, two amino groups, and one sulfonic acid residue attached to a partly aromatic nucleus. The presence of all these highly polar functional groups endows thiotimoline with a negative solution time. Specifically, 1 g. will dissolve in 1 ml. of water in minus 1.12 seconds on the average. That is, the compound will dissolve shortly before the water is added.

But you cannot fool thiotimoline. It will never dissolve unless the water is really going to be added. Since this is true, the drug can be used to measure the willpower of the person who is going to add the solvent. The greater the negative solution time, the stronger the willpower of the individual who is really going to pour.

Unfortunately, Asimov is a biochemist, not a health scientist. Although he investigated many of the physical properties of thiotimoline and even developed a special endochromometer for measuring the negative solution time of the compound, its physiological properties remain almost completely unexplored. This is tragic because if the drug has any major curative properties, it is obvious that they will be effectuated in a negative time - in other words, the drug will cure the disease before it is administered. Lest you think such a compound would have disastrous effects on the pharmaceutical industry, permit me to remind you that the drug would actually have to be given. Remember, you can't fool thiotimoline. But if administered for a disease state in which it is effective, it could cure the illness prior to ingestion. In the case of especially strong-willed individuals it would, almost certainly, cure the disease before symptoms become noticeable and possibly, in some cases, even before the disease was contracted. What a contribution that would be to modern materia medica!

Think of all the features of this drug which await your research efforts. Its method of isolation needs to be improved (perhaps

(*Continued on next page*)

ARTICLE OF INTEREST (*Continued from previous page*)

it exists in other species or genera than that from which it was originally obtained), its structure needs to be determined with certainty, and the biosynthetic pathways by which it is produced require elucidation. Perhaps it can be prepared from simple precursors by a fermentative modification technique. All of these questions require an immediate answer, but before you rush out to begin work on them, wait just a few more moments. I have one more drug to discuss which may intrigue you even more.

In the September 20, 1886 number of the Berichte der Durstigen Chemischen Gesellschaft, there appeared a most remarkable paper by M. Quieccolini. Titled, in translation, "Spinatine, a New Alkaloid," it detailed the difficult isolation of 30 mg. of spinatine from 5,000 kg. of Spinacia oleracea, common garden spinach. Analysis showed that the alkaloid had an empirical formula of:

$$C_{187}H_{231}N_{11}O_{17} \cdot \tfrac{1}{17} H_2O$$

It formed the hydrochloride salt readily.

Studies undertaken by Professor Fresscati revealed that the alkaloid possessed potent anorectic activity. This property of spinatine had long been hypothesized from the casual observation that ingestion of eggs and spinach plus a couple of veal cutlets produced a feeling of comfort, hunger satisfaction, and well-being. Utilizing just 0.7 mg. of spinatine sprinkled on two veal cutlets and ingested by a test subject, Fresscati was able to observe a definite feeling of well-being and hunger satiation in the volunteer. Increased doses were then administered in increments of 0.35 mg. per veal cutlet until a total of seven had been ingested. At this point, the subject began to feel distinctly uneasy, and after a total dosage of 3.5 mg. of spinatine on ten veal cutlets, nausea and related toxic symptoms were manifested.

The author concluded that like caffeine and theobromine, small doses of spinatine were stimulating but that large doses had a distinctly toxic effect. In my opinion, after-dinner speaking can be compared to spinatine. It is all right in small amounts, but definitely toxic in large doses.

So I had better sit down, but before I do let me assure those of you who have been comfortably snoozing throughout my presentation that although I may have some serious misgivings about pharmacognosy research, this paper does not present a real solution to that problem, for all of the examples presented this evening are only as real as the fictional works from which they were taken, and that my whole speech was a hoax. Some of you no doubt tumbled to it sooner than others. The names of the postdoctoral fellows who provided my literature survey are garbled versions of the President, Provost, and Vice president for Research at Purdue. Melange or spice comes from Frank Herbert's classic science fiction trilogy, Dune, Dune Messiah, and Children of Dune. The unknown fungus with such interesting properties derives from the same author's The Santaroga Barrier. The catalepsy drug is featured in William Shakespeare's Romeo and Juliet, and tara leaves in famous 1932 horror film, The Mummy, starring Boris Karloff. Athelas or kingsfoil is discussed in volume 3 of the Lord of the Rings by that master of fantasy J.R.R. Tolkein, and the white alkaloid is the drug which converted Dr. Henry Jeckyll to Mr. Edward Hyde as described by Robert Louis Stevenson. The psychosis-inducing mushroom is the one Alice encountered in Wonderland under the direction of the Reverend Mr. Dodgson, alias Lewis Carroll, and thiotimoline was an actual hoax originating in the fertile brain of Isaac Asimov. I understand he was asked a question about it during his Ph.D. examination. Finally, spinatine is discussed in the reference already cited, a kind of April-fool edition, published in September, 1886, of the well-known German journal, Berichte.

Thank you very much. You have been a wonderful audience. If I fooled you a bit, I'm glad. If I failed to do so, it's your own fault for being so well-read.

SOCIETY NEWS

FUTURE MEETING

The American Society of Pharmacognosy has accepted an invitation to hold its 1980 Annual Meeting again jointly with the Gesellschaft für Arzneipflanzenforschung in Europe. At a planning session in Münster, Germany, it was agreed to accept an invitation from Professor R. Anton to hold the meeting on July 6-10, 1980 in Strasbourg, France. Sponsors of the meeting will be the two Societies mentioned and in addition the Association Francaise des Enseignants de Matière Médicale and the Phytochemical Society of Europe. An organizing committee was appointed consisting of one representative of each of the Societies and Professor Anton as chairman. The ASP will be represented by H.G. Floss, who together with Jack Beal and Jack Rosazza constitutes the scientific program committee of the ASP for this meeting. Discussions of possible program topics will take place in the individual societies during the next few months and a preliminary program will hopefully be formulated at a second planning session during the IUPAC Natural Products Symposium in Bulgaria in September, 1978. Any suggestions from members are most welcome and should be directed to H.G. Floss at Purdue University, West Lafayette, Indiana 47907.

NEWS AND NOTES

AMARYLLIS RESEARCH INSTITUTE AND GERMPLASM FORMING

The Amaryllis Research Institute has been incorporated as a non-profit scientific, educational, and charitable organization to establish and maintain a germplasm reservoir of species of the South American genus Amaryllis, Linn. (=Hippeastrum, Herb.). For eash species maintained in the Germplasm Reservoir, several parental clones will be sought. Multiple parental clones will be desirable, not only for the sake of genetic diversity, but also to overcome the widespread self-sterility in Amaryllis species. In addition, the Institute hopes to make its plant materials and future facilities available to outside investigators for studies of the physiology, genetics, and propagation of these plants, as well as for basic taxonomic work. The Institute's aim is to produce fertile seed strains for each species. Some of these seeds will be grown on for use as the nuclei of viable breeding colonies, while others will be awarded to qualified recipients for botanical research. Initial space is being provided in greenhouses in the Indianapolis, Indiana, area. Donations of both plants and money are needed, and memberships are being offered at annual contributions of US $5.00. Members will receive the Institute's Reports and will be eligible for seed distributions as surpluses become available from the Institute's projects.

For information, write to Dr. James E. Shields, The Amaryllis Research Institute, Inc., P.O. Box 50121, Indianapolis, Indiana 46250, U.S.A.

KENTUCKY UNDERGRADUATE RESEARCH MEETING

An undergraduate research meeting is being arranged for the weekend of the 13, 14, and 15th of October, 1978, in Buckhorn Lake State Park, Kentucky. Undergraduates are invited to present research papers or attend the meeting along with faculty from representative schools. Further information concerning this meeting can be obtained by writing to: Dr. Laurence Hurley, College of Pharmacy, University of Kentucky, Lexington, KY 40506.

PROMOTIONS AND APPOINTMENTS

Dr. Wolfgang Kubelka, University of Vienna, Austria, has been appointed to A.O. Professor.

Dr. Stanley Scheindlin has been promoted to Director of Technical Affairs at Lemmon Pharmacal Co., Sellersville, PA.

Dr. James D. McChesney has accepted the Chairmanship of the Department of Pharmacognosy, University of Mississippi.

Dr. Norman J. Doorenbos, formerly chairman and professor of Pharmacognosy at the University of Mississippi, is now Dean of the College of Science and Professor of Physiology at Southern Illinois University at Carbondale.

GENERAL

Dr. H.H.S. Fong, University of Illinois, has returned from a sabbatical leave at the Chinese University of Hong Kong where he was a consultant for the WHO Task Force on Indigenous Plants for Fertility Regulation.

Dr. David Perlman, University of Wisconsin, has received the James M. Van Lanen Award from the Division of Microbial and Biochemical Technology of the American Chemical Society.

Bitter End Field Station, Virgin Gorda, British Virgin Islands, has been transferred from the University of Mississippi to Southern Illinois University. There is space and facilities available for two additional graduate students or Faculty to work at Bitter End during the next academic year. If you are interested please contact Dean Doorenbos, Southern Illinois University at Carbondale, Carbondale, Illinois 62901.

Dr. David M. Piatak, Northern Illinois University, DeKalb will be in Belgrade, Yugoslavia on a National Academy of Science exchange award to study Adriatic Sea Organisms.

CALL FOR INPUT

WE HOPE THAT YOU HAVE FOUND THE NEW FORMAT ENJOYABLE AND THE MATERIAL INTERESTING. AS ALWAYS, TO CONTINUE THE NEWSLETTER AS AN EXCHANGE BETWEEN PHARMACOGNOSISTS, WE WILL STILL NEED YOUR INPUT. PLEASE MAKE USE OF THE REPORT FORM INCLUDED IN THIS ISSUE. PLEASE FEEL FREE TO ADD YOUR COMMENTS ABOUT THE NEWSLETTER WHEN YOU SEND YOUR INFORMATION.

REPORTS

1979 Scientific Program Committee

The first meeting was called on August 11, 1977 in Seattle. The committee is planning two symposia entitled "Recent Advances in Alkaloids" and "Recent Advances in Antibiotics" for its 20th annual meeting at Purdue University, West Lafayette, Indiana. The date was changed from July 23-July 27 to July 29-August 3 due to the conflict with the Gordon Conference on Natural Products in 1979.

The following scientists have accepted our invitation to act as symposium speakers in the subject areas indicated:

Recent Advances in Antibiotics

1. Dr. David Hopwood — John Innes Institute, Norwich, East Anglia, United Kingdom.
2. Dr. Yoshito Kishi — Harvard University
3. Dr. Yoshiro Okami — Institute of Microbial Chemistry, Tokyo, Japan
4. Dr. Kenneth L. Rinehart, Jr. — University of Illinois, Urbana
5. Outstanding Scientist from Pharmaceutical Company.

Recent Advances in Alkaloids

1. Dr. S. William Pelletier — University of Georgia
2. Dr. Pierre Potier — Institute of Natural Product Chemistry, France
3. Dr. Ernest Wenkert — Rice University
4. Dr. Meinhart H. Zenk — Ruhr-Universität, Bochum, Germany
5. Outstanding Scientist from Pharmaceutical Company.

A tentative schedule for the 1979 meeting has been set up by the local program chairman, Dr. James Robbers and the scientific program chairman.

Sunday, July 29, afternoon: registration

evening: reception

Monday, July 30, morning: symposium

afternoon: contributed papers

evening: informal discussion group on undergraduate pharmacognosy education

Tuesday, July 31, morning: symposium

afternoon: contributed papers

evening: picnic

Wednesday, August 1, morning: symposium

afternoon: contributed papers

evening: business meeting

Thursday, August 2, morning: symposium

afternoon: contributed papers

evening: banquet

Friday, August 3, morning: symposium

Respectfully submitted,

Ching-jer Chang, Chairman

G.A. Cordell

C.D. Hufford

R. Hutchinson

THE AMERICAN SOCIETY OF PHARMACOGNOSY

The American Society of Pharmacognosy was founded in 1959 to promote the growth and development of pharmacognosy, to provide the opportunity for association among the workers in that science and in related sciences, to provide opportunities for presentation of research achievements, and to promote the publication of meritorious research.

Active membership in the Society is open to pharmacognosists of all nations and to other interested persons. Annual dues are $25.00 and include a subscription to LLOYDIA, the official journal of the Society. Graduate students in pharmacognosy may become associate members upon payment of $2.00 per annum. Honorary members are selected by the Executive Committee on the basis of meritorious service to pharmacognosy. Any person or organization may become a patron by contributing $100, a sustaining member by contributing $500 or a benefactor by contributing $1000 for the support of the Society. Such membership is renewable annually.

All correspondence concerning active or associate membership should be addressed to the Vice-President. Inquiries regarding patron membership and notice of address change should be sent to the Treasurer.

SOCIETY OFFICERS 1977-78

PRESIDENT: Heinz G. Floss
Purdue University
West Lafayette, Indiana 47907

VICE PRESIDENT: Harry H.S. Fong
University of Illinois
Chicago, Illinois 60680

SECRETARY: Jack K. Weir
University of North Carolina
Chapel Hill, North Carolina 27514

TREASURER: Lee C. Schramm
University of Georgia
Athens, Georgia 30602

BENEFACTOR

Dr. Madis Laboratories, Ind.

SUSTAINING MEMBERS

Hoechst-Roussel Pharmaceuticals, Inc.
Eli Lilly and Company

SOCIETY PATRONS

Abbott Laboratories
Burroughs Wellcome Company
Geigy Pharmaceuticals
Hoffman-La Roche
ICI United States, Inc.
Marion Laboratories, Inc.
Mead Johnson Laboratories
Meer Corporation
S.B. Penick & Company
Schering Corporation
E.R. Squibb & Sons, Inc.
Wyeth Laboratories