tioned decisions of the lower Federal courts, the man who first produces a novel true chemical compound can acquire by a patent so absolute a monopoly upon that true chemical compound that for seventeen years he can prevent any one from producing it by any process whatsoever, including all processes which are entirely unlike his own process. Surely nothing could be more irrational than the fact that upon producers of true chemical compounds, including medicinals and pharmaceuticals such as those listed above, were, and are, bestowed the tightest patent monopolies on the face of the earth, founded, mind you, upon subject-matters which can not be "inventions" of man, but which are "inventions" of nature alone! And since such absolute patent monopolies undoubtedly discourage the developments of novel processes for the productions of patented true chemical compounds, they can hardly be said "To Promote the Progress of Science and Useful Arts."

Fortunately, the U. S. Supreme Court has never explicitly affirmed any one of these egregious decisions of the lower Federal courts, nor has it ever categorically declared true chemical compounds, as such, to be patentable, so that a single decision of that tribunal will suffice to dispose of these "earth and a slice of Heaven" patent monopolies. But an amendment of our statutory patent laws, expressly excluding from intrinsic patent protection all true chemical compounds, would accomplish the same result just as effectually and more expeditiously.

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SPACE PERCEPTION BY RADIO

MOST people who have bought an improved radio junk their old one. That is not always wise, as will be shown. First find out whether your old radio amplifies better the low or the high pitches prevailing in music. Then adjust your new radio, which often permits it, so that the other pitches are favored by its amplification. Now, if you have a very large room, put one radio in one corner and the other in the diagonal corner, and seat yourself near the middle. If you have only small rooms, choose two with a connecting door open, place your radios as far apart as possible and seat yourself near the door in the larger of the two rooms. A little experimenting may be called for. You will more or less readily observe a strange effect. Close your eyes or simply forget what you actually see with them. It seems that you have before you the orchestra with the musicians so seated that the highest pitched instruments are on one side of the stage, the lowest pitched on the other side, and the middle instruments ranged between accordingly.

If it is a mixed chorus you are listening to, the female singers seem to be on one side of the stage, the male singers on the other side. Or if it is a duet of a soprano and a basso of the Metropolitan Opera, you seem to be located between the woman and the man. In some cases, though, the peculiar voice quality of the basso singer may diminish the strength of this spatial illusion by "splitting," so to speak, the basso's voice into a lower and an upper component. It goes without saying that you can have the effect only if you have two fairly good ears. If you are deaf or hard of hearing on one of your ears, you will try in vain.

The whole effect would be a very small *esthetic* addition, if any, to what you can get with a single radio, although in any case it would be interesting enough. But there is something else to be mentioned. As soon as you begin to differently *localize* the higher and lower sounds, you notice that the ease with which you *analyze* the compound sound is enhanced, the keeping apart of the components of any chord in your musical apprehension is a matter of less effort to your attention. When the tones say to you, "I am here and I am there" you become more readily aware of their separate existence. Now, whoever knows anything about the psychology of music knows that the ability to analyze, to overcome the fusion to which the simultaneous tones are subject in the untrained listener, is one of the greatest assets for the appreciation of our modern highly complex music. The method above described is therefore a distinct aid for getting the maximum of esthetic appreciation. If you have two good ears, why not utilize fully the possession of both?

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MICROBIOLOGY OF COAL

A STUDY of the biological decomposition of coal has been under investigation in the Departments of Fuel Technology and Bacteriology of the Pennsylvania State College for several months to determine the types of microorganisms that can decompose coal, to study the changes occurring in solutions containing humic acids prepared from bituminous coal and to examine the technical and economic aspects of such changes.

While various investigators have established the presence of microorganisms in coal, an appreciable consumption of coal substance by microbial activity has not previously been recorded in the scientific literature.

For the present experiments coal solutions proved to be an excellent substrate for cultivating bacteria. These solutions were prepared from the alkali-soluble "humic acids" resulting from the oxidation of bituminous coal. The basic substrate for the biological experiments was a 2 per cent. humic acid solution. Microorganisms of the order of true bacteria, fungi and actinomyces were found to grow on liquid and solid

humic acids media. The organisms utilized the coal substance for their food and energy requirements up to the point where almost the entire carbonaceous material was consumed. By bacterial action over a period of at least six weeks, the originally dark-brown solutions became colorless, indicating that the humic acids were completely destroyed.

A preliminary chemical investigation has shown that the breakdown of the coal substance does not yield volatile compounds, such as methanol or acetic acid but gives rise to non-volatile acids, which are now under investigation.

It is believed that the products formed by the activities of microorganisms on coal solutions may prove of economic value. In addition, a knowledge of the type and the mechanism of metabolism of such microorganisms will assist in a better understanding of the decomposition of humic acids in soils.

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SOCIETIES AND MEETINGS

THE FIRST SOUTH AMERICAN BOTANICAL CONGRESS

THE first South American Botanical Congress held its meetings at Rio de Janeiro, Brazil, during the week from October 12 to 19, 1938. The congress was the result of efforts made by some of the leading botanists of South America to bring about such a gathering in order that a definite program of cooperation in botanical research could be initiated for the several South American nations and colonies.

Although the congress was specifically for South American botanists, other nations were invited to send botanical representatives, and Cuba, England, The Netherlands, Germany and the United States were represented. Chile, Peru, Paraguay and British and French Guiana were not represented by botanical delegates, but were represented at the general meetings by their embassies.

The greater part of four days was occupied in the reading and discussion of well over a hundred technical papers on various botanical and agricultural subjects. The papers given were about equally divided in the following fields of research: Systematic Botany, Microbiology, Morphology, Physiology, Genetics, Phytogeography and Applied Botany. Since the time was short and the papers numerous, the various fields of work were discussed in concurrently running sections and the delegates attended the sections which dealt with their particular field.

Two days of the congress were devoted to trips out of the city in order that visiting delegates could see some of the distinctive features in the nearby country. One of the trips was to the beautiful resort area about the town of Petropolis, which lies well up in the mountains some three hours' drive by car on an excellent highway from Rio de Janeiro. Here the delegates caught glimpses of virgin forest and made a highly interesting visit to a large private display of orchids. The officials of the town of Petropolis were hosts at a luncheon for the delegates. The other trip was a more extensive journey by rail to view the "restinga" vegetation of the seacoast.

Dr. P. Campos Porto, director of the Biological Institute and Botanic Garden at Rio de Janeiro and also president of the Committee of Organization for the congress, was host at a garden party for the delegates. The setting was of exquisite beauty, in the Botanic Gardens, with Royal palms and mountains for background and countless orchids blooming on all sides. Leading Brazilian artists contributed to the entertainment with folk dances and songs as well as classical music.

Two plenary sessions of the congress were held, during which several important resolutions were approved for recommendation to the respective governments. The following, of general interest, may be mentioned here:

To establish regional botanic gardens. Each country to choose areas within its limits to set up arboreta or botanic gardens where the representative flora of the region may be studied. These botanic gardens will form a South American System for exchange of information between the various regions of South America.

To establish a South American Botanical Bureau. Each country will establish a central bureau, which will be charged with the task of bringing together botanical information pertinent to that country. It is intended that the bureaus in each country will eventually become federated for the whole of South America and that eventually there will be established a central bureau for the continent.

To supervise and regulate exploration. Each country shall recommend that its government promulgate regulations so that such exploration can not take place without the previous knowledge and permission of the government. Duplicates of all collections shall be left in the country and unique or rare collections shall have their export forbidden.

At the opening meeting permanent officers were elected for the years 1939 to 1942. They are as follows: *President,* Dr. Alberto Castellanos, Museum of Natural History, Buenos Aires, Argentina; *Vice-president,* Dr. Fernando Rosa Mato, Museum of Natural