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## THE AUSTRALIAN MEETING OF THE PAN-PACIFIC SCIENCE CONGRESS

THE second meeting of the Pan-Pacific Science Congress was held in Australia from August 13 to September 3, 1923. Melbourne was the meeting place for the first half of the session and Sydney for the second half. With this meeting, coming three years after the first or Honolulu meeting, it may be taken for granted that the original idea of international conferences of scientists for the purpose of dealing with problems of the Pacific region has taken shape as a definite and permanent organization. From the fact that the date and place for the third meeting has already been fixed as Japan, 1926, it may also be assumed that meetings will be held once in three years, in different countries of the region.

The thing of foremost impressiveness for all the "overseas" members was the seriousness with which the Australians regarded the congress, as indicated by what they did to make the meeting a success.

Take first the financial obligations they took upon themselves in connection with it. A fairly close estimate of what I, as one of the members, cost the country sums up to about $600. Assuming this as the average for each of the guest members, we have the not inconsiderable total of $60,000. Prorating this among 5,000,000 population of the commonwealth gives a per capita figure of one and two tenths cents. On a proportional basis the United States, with its population of 110,000,000, would yield $1,320,000. What chance would there be of raising this amount were San Francisco or St. Louis, let us say, to be selected as the meeting-place of the congress?

Something about the way Australia met the expenses is interesting. It was done partly through direct appropriation by the Commonwealth government; partly through the granting of free transportation by the state governments on their state-owned and operated railway and tram lines; partly through appropriations by scientific organizations; and partly through gifts from individuals. The whole affair was managed by the Australian National Research Council.

But when the stolid matters-of-fact about money and management have been set forth, only a little has been done toward producing the evidence of the seriousness with which the congress was taken by the nation. From governors and premiers down to train

and tram men, all official Australia seemed to be familiar with the arrangements, and bent on doing all they could to make everything go effectively and pleasantly.

As to unofficial Australia—well, although the visitors naturally came less in contact with this major part of the population, the impression, I, for one, got, was that there were few indeed who had not at least heard that something was going on in their midst which was somehow connected with science and that a lot of people from remote parts of the earth were taking part therein. Furthermore, the impression of a general public interest in the congress was greatly strengthened by the attitude of that most sensitive of all indicators of such interest, the daily press.

I am quite sure all the American delegates would agree that probably no newspaper in the United States would make as much effort to "cover" adequately the doings of any scientific meeting, or would give as much space thereto, as did some of the papers of Melbourne and Sydney. And I doubt whether the leading papers in any American city are under a whit greater pressure for space-allotments than are the main papers of these cities.

One of the foremost men in the editorial department of the Sydney *Morning Herald* told me that the management of his paper took positive action at the beginning of the meetings, in accordance with the assumption that the proceedings would be sufficiently important to entitle them to first consideration in making up the issues of the paper from day to day. To my American ears, somewhat familiar with editorial ideas about the news value of "scientific stuff," this statement came with no little astonishment. Nor could the space given congress matters by the papers have been apportioned with a managerial eye on the increased sales of papers since the number of visitors was altogether too small to cut any figure in that way.

What, then, was at the bottom of the remarkable local interest in this meeting? Does it mean an appreciation of science just for its own sake in this numerically small nation remote from the world's centers of science, surpassing that in such a nation as the United States? No, I think not. Hardly any remark by Australian men of science themselves was more frequently heard during the meetings than comparison of their country with America in this regard, quite to the disparagement of the former. And it is not difficult to see some ground for this, even after due allowance is made for the good British trait of self-criticism here displayed.

A bird's-eye view of what was done and what was planned to be done at the meetings makes clear those features of the congress that aroused the imagination of the Australians and induced them to put forth all the effort they did put forth in behalf of this particular meeting. They saw in the congress an international agency of great possibilities for making their country, its people, its resources and its problems better known, and also for getting a measure of help toward solving some of their many hard problems.

Of special significance were the number and character of the excursions planned and the expert guidance provided for enabling the visitors to learn the most possible with the least effort about the places and things visited. Speaking for myself, what I was able to learn about that remarkable country and its remarkable people by the glances I got along the coastal region from southern Victoria to northern Queensland will be a far more unique and vital possession than anything gained from the formal doings of the congress. And I have little doubt that such would be the testimony of many of the delegates.

The excellent "Guide-book" series is further evidence of the desire of the Australians to extend information about their country. These, a dozen or so, were in pamphlet form. Each number, devoted to a particular district visited, was about 35 pages long and contained articles by experts on the geography, geology, botany, zoology and so on of the region. All were well illustrated by maps and photographs. I have no doubt that these publications were carefully preserved by all the visitors and will serve them and their friends as reference works on Australia for years to come.

A second major motive which inspired the Australians in their cordial attitude toward the congress was their desire to obtain help in the solution of the hard problems which their country has on its hands.

A visitor begins to feel what some of the most urgent of these problems are even before he gets off his ship. Information about them begins to filter into his mind through chance copies of daily papers and other printed sources of information, and through conversations with fellow-passengers, some time before the landing is made.

Perhaps none of these problems are more widespread, more constantly to the front, than those of pests—pests mostly of foreign origin. The impression one may easily get on his first day in Australia grows stronger the longer he stays there, that here is the land preeminent in all the world as the land of pests. The rabbit pest one had, of course, heard about before ever he thought of visiting Australia. But he was hardly prepared to find that among Australians themselves opinion differs as to whether the rabbit or some one among perhaps half a dozen others is the real King of Pests. Especially close competitors are the prickly pear pest, the blow-fly pest (for sheep), and the tick pest (for cattle). But then there are the fox pest, various insect and para-

sitic plant pests for wheat, sugar-cane and bananas; and how many others of less evil repute only a corps of pest-fighting experts can tell.

This bad preeminence in the matter of pests is to a large extent the price Australia pays for the uniqueness of her native fauna. At least this is the view held by some of her best naturalists. This uniqueness is illustrated by her far-famed ornithodelphian and marsupial mammals. Apparently the primitiveness and hence the biologic inferiority of her native animals give her no natural competitors able to cope with the more highly evolved importations from foreign lands. Even Australian earthworms, creatures far down in the animal scale, as well as her human aboriginals, creatures far advanced in that scale, are being supplanted by death-dealing European competitors.

No aspect of the work of the congress seemed to appeal more strongly to Australians than that of the entomologists, plant parasitologists and hygienists, in their struggles against the ravages of insects, fungoid and bacterial pests. It is highly significant that workers in these sciences from many of the tropical regions of the Pacific—from New Guinea, from Fiji, from Hawaii, from the Philippines, from Malaysia and from Formosa—have joined hands the more effectually to carry on the struggle. The problem of man's conquest of the tropics is one of the greatest of his problems for the immediate future and no aspect of this problem is more important than that of the conquest of pests. One of the surest promises of good from the Pan-Pacific Science Congress is in this very creation of a solid scientific front for protecting man from the infinitely varied and subtilly and ceaselessly destroying hosts by which he is beset, especially in the tropical and subtropical parts of the Pacific area.

Another set of Australia's hard problems centers around her peculiar topographic and climatic conditions. A continent with no great mountain ranges, and with such mountains as there are all huddled together in a few localities near its sea coasts, is sure to present many situations perplexing to its human inhabitants. For one thing in such a continent no great rivers nor fresh water lakes are possible. And the important part these have played in most of the world's great civilizations is so obvious as to raise questions aplenty when one's attention is seriously called to an effort to build up a high civilization in a continent deprived of such natural features. And when one further reflects on the influence such a paucity and such a disposition of mountains is sure to have on rainfall, he is still better prepared to appreciate the character and magnitude of the problems indicated.

A visitor soon discovers that Australians are keenly alive to the fact that if ever such problems as these are to be solved, science, in both its research and application aspects, will have to be largely depended upon for doing it. It is easy to understand why these matters loomed so large in the meetings of the congress, in the plans made for the excursions, and in the attention given congress affairs by the press.

Speaking broadly, the program of this meeting of the congress was given its character by the Australian National Research Council, and was a reflection of the country's chief rôle in the industrial world, as a producer of things from its lands and from its mines that are essential to human life and well-being. Recognition of this fact about the meeting raises some exceedingly interesting questions concerning the future policy of the congress.

To what extent should the work laid out for future meetings be left to the scientists of the countries in which the meetings are held? My answer is quite different from what it would have been before my participation in this Australian meeting. Expressing as I am in this article nothing beyond the results of my individual observations and reflections, the answers I give to the questions raised can have no weight beyond such as belongs to them by virtue of their embodiment of facts and their rational soundness. I am now convinced that the congress can attain its greatest usefulness by leaving the determination of the work to be done largely (though not wholly) to the accredited scientific bodies of the host countries and by having this work center around problems of primary importance to these countries. All problems of natural science important enough to deserve treatment in such meetings have general as well as special aspects. They consequently should be interesting to guest delegates even though treated with reference to special local problems. For example, Japan could hardly have any local problems in hygiene or meteorology, a truly scientific treatment of which would not involve aspects broad enough to make them interesting to Canadian and Australian specialists on these subjects. Such a local cast of the programs would aid the scientists of the host countries in gaining public interest in and support of the meetings. Finally, the carrying out of such programs ought to exert a definite influence on the relations between the nations composing the congress. Hardly anything could be more reasonably expected to promote good neighborliness between Australia and Japan, let us say, than for a number of Australia's ablest workers in science to go to Japan as Japan's guests, with the express understanding that their best efforts while there should be given to studying, and assisting in the solution of, such of Japan's problems as her own experts should regard as most vital to her welfare. It is reasonable to forecast consequences of exceedingly

far-reaching good from a faithful carrying out and expansion of the policy here indicated.

A second question raised by this meeting concerning the policy of the congress for future meetings is: What should be the relation between "pure" and "applied" science in the formal programs and in the actual work of the meetings? Numerous, close-at-hand, and urgent as are the practical problems confronting all the countries of the Pacific region, the tendency will always be strong for applied science to push itself too much into the foreground. There will be constant danger that pure science will not get a chance to play the part which it really must play in order that the central idea of the congress may yield its best fruits.

This question dips too far down into the nature and true function of science to permit any adequate discussion of it here. But this much of practical moment may be said on the subject: An examination of the nature of science discovers that scientific research is one of the means acquired by man in the long and hard course of his evolution to assist him in solving the problems of his life upon the earth. It is one of man's adaptations to the environing conditions under which his life is possible. From this it follows that every problem of natural science may be seen to have both a pure and an applied phase. The widely held notion that some scientific problems are wholly pure, while others are wholly applied, rests upon a defective understanding of the nature of science. The practical value of seeing what the true relation is between pure and applied as used in connection with problems of natural science is that it brings home to the scientific worker the important truth that the more pressing and difficult is a given problem of applied science, the more necessary is it to study that problem broadly and deeply as a problem of pure science.

When one views the program of the Australian meeting in the light of what has just been said, he notices certain rather serious defects in it. For instance, the two most basic natural sciences, hence the ones most broadly relative to all special and applied problems, namely, physics and chemistry, were not formally represented in the program. To leave out the great sciences of mathematics and astronomy altogether was more than sound theory and healthy practice in science could approve. Theoretically and practically, these sciences should be added as soon as circumstances make it possible to do this effectively. The question of further enlarging the group of biological sciences so as to include such major divisions as physiology and bacteriology will naturally come up sooner or later.

But from the standpoint from which this glance at the general idea of the Pan-Pacific Science Congress is taken, the most important expansion of the work which ought to be made is in the realm of the humanistic sciences.

This fundamental matter I propose to make the subject of a special article in the near future.

WM. E. RITTER

BERKELEY, CALIF.,
JANUARY 25, 1924

## THE TWENTY-FIFTH ANNIVERSARY OF THE DISCOVERY OF RADIUM

THE discovery of radium by the Curies was officially announced to the world in a paper read before the Academy of Sciences of Paris on December 26, 1898. The twenty-fifth anniversary of this momentous event in the progress of science was appropriately celebrated in Paris on the initiation of the Curie Foundation. The writer happened to be in Paris at the time, and was kindly invited to take part in the celebration.

The principal ceremony took place at the Sorbonne and was presided over by President Millerand. The program was as follows:

(1) *La Marsellaise,* played by the band of the Republican Guard.

(2) *Allocution by M. Paul Appell,* rector of the Academy of Paris and president of the Curie Foundation.

(3) *Polonaise Number 4* (Chopin), played by the band of the Republican Guard. The sentimental appropriateness of this selection is obvious since Poland is Madame Curie's native country.

(4) The presence of Professor Lorentz, who came from Leyden to take part in the ceremony, caused a change in the program. President Millerand called on the eminent Dutch physicist to speak at this point. In very good French he brought out clearly the importance of radioactivity in modern physics, its relation in the unification of chemistry and physics, and the part played in the determination of atomic structure.

(5) *Conference by M. Jean Perrin, "Radioactivity and its importance in the universe."* Professor Perrin compared the advent of radioactivity to the conquest of fire by primitive man. He then reviewed the salient points of the discovery and of the properties of radioactive substances, emphasizing the transmutation of one element into another and mentioning the possibility of being able to do this at will in the future.

(6) *Reading of the significant passages in the scientific communications of the Curies* in which the initial discoveries relative to radioactive bodies were originally announced to the Academy of Sciences.