



In Memoriam Professor Dr. Ir. C. Coolhaas

On February 5, 1966 Professor Dr. Ir. C. Coolhaas died in Wageningen at the age of 70. His death was not unexpected, for during the last few months his health had been steadily declining. Nevertheless it struck his relatives and friends very hard. With his passing away a very active life ended the greater part of which was spent in the former Dutch East-Indies and was devoted to tropical plant husbandry. May his successful work and his memory be honoured in the following.

Caspar Coolhaas was born on November 27, 1895 in Den Helder. In 1916, he became a student at the "Rijks Hogere Land-, Tuin- en Bosbouwschool" in Wageningen, from which institution the Agricultural State University (Landbouwhogeschool) originated in March 1918. It was at this University that Coolhaas in October 1921 got his Master's degree (M.Sc.). Soon thereafter he was appointed as a research worker in the Department of Microbiology of the University, this Department then being under the direction of Professor Dr. N. L. Söhnngen. There he worked until 1928. During this period he married, and his beloved wife remained, until her accidental death in 1956, his faithful support and help. In December 1927, Coolhaas was awarded the degree of Doctor of Agricultural Science cum laude. The title of his thesis was "Bijdrage tot de kennis der dissimilatie van vetzure zouten en koolhydraten door thermophile bacteriën" (Contribution to the knowledge of the dissimilation of fatty acid salts and carbohydrates by thermophile bacteria).

The following year he sailed with his family for the Dutch East Indies, where he accepted an appointment as chemist-bacteriologist at the Experiment Station for "Vorstenlanden" tobacco in Klaten (Java). This institution was the oldest private experiment station in the former Dutch East Indies. It had grown from the temporary stationing in Klaten of investigators from the Botanical Gardens in Buitenzorg to give scientific aid to tobacco planters in the Principalities of Central Java.

Initially this scientific aid was primarily directed toward attempts to control the notorious black-shank disease which occasionally ravaged the tobacco crop. Gradually research was extended to other agricultural problems, especially those in the field of plant breeding. The expectations were that the *Phytophthora* disease could be most effectively controlled through the selection of resistant lines, which indeed were successfully used in later years.

The relatively small acreage occupied by the "Vorstenlanden" tobacco culture put a restriction on the budget available for scientific research, so that the Tobacco Experiment Station (P.V.T.) remained the smallest of the experiment stations in the Dutch East Indies. In 1928, the small scientific staff of four research workers underwent a complete renewal and along with this change, the P.V.T. became the first experiment station to be completely staffed by alumni of the Agricultural State University in Wageningen.

The diversity and number of agricultural problems associated with a particular crop are no less for a small than for a large acreage. This situation brought along extra difficulties in planning and conducting a research program for the small scientific staff of four. The problems increased when in 1934 during the depression years this number was brought down to three. At that time, Coolhaas became in charge as director-plantbreeder.

It has certainly been a proof of Coolhaas' capabilities and organizational talents that, in spite of these difficulties, the scientific achievements of the Klaten Experiment Station can be marked as highly satisfactory. His primary activities were directed toward improvement of the qualitative features most important for cigar tobacco: combustibility and colour of the ash. It is typical of Coolhaas' research that it was planned and conducted in a truly agricultural fashion, being a simultaneous approach and coordination of all agricultural aspects of the combustibility problem, namely the chemical, pedological, nutritional, technological (curing) and genetical facets.

Only through the fortunate combination in Coolhaas' personality of knowledge and zeal for research in such widely diversified fields, was it possible that complicated problems concerning tobacco production could be successfully solved by such a small group of investigators. Small improvements in each of the aspects of the combustibility problem, jointly applied, could in many instances lead to a satisfactory market product.

Through the favourable effect of selection and breeding on the combustibility of tobacco leaf, Coolhaas could show that a genetic transfer of physiological properties is of importance in the tobacco plant. The line obtained from the local variety "Kanari" with better burning qualities was called Kanari-Brand-Selectie, or K.B.S. This line has been successfully used on various tobacco plantations, especially as F₁ obtained from combination with *Phytophthora*-resistant varieties.

From 1934, when he became director, until the end of 1937 when he went to Malang, Coolhaas gave the finishing touch to the solution of the *Phytophthora* problem through introduction of resistant and qualitatively superior varieties obtained from Timor × Vorstenlanden crossings.

The results of his work were published in Special Reports and in the Annual Reports of the Experiment Station for "Vorstenlanden" Tobacco (*Mededeelingen Proefstation voor Vorstenlandsche Tabak*). During the Tobacco Congress held in Amsterdam in 1951, Coolhaas presented a lecture on the practical large-scale use of artificial F₁ hybrids, made possible through the abundance of seeds produced by one tobacco plant.

When in December 1937 Coolhaas assumed the Directorship of the "Proefstation Midden- en Oost Java", the experiment station of the C.P.V. (Central Organisation of Experiment Stations for perennial Upland Crops) at Malang, Java, nobody could foresee that his activities there would be of such a short duration.

It is therefore the more remarkable that in a period of normal circumstances lasting less than two years, he was able to put a markedly personal stamp on this institute.

Of the research items, either directed by him or partly in cooperation with staff members may be mentioned the topophysis of coffee, which again led to experiments on methods for grafting and rooting of cuttings in coffee. Another item of research in that time was the detection of adulterations in ground coffee. Selection, cytology and embryology of coffee and cacao made progress. The articles in the periodicals of the C.P.V., viz., "Bergcultures", "Archief voor de Koffie-cultuur", "Archief voor de Cacaocultuur" and "Archief voor de Rubbercultuur" in those years are testimonies of the work during that period.

Coolhaas greatly stimulated the extension work of the experiment station by starting the so-called contract experiments. In these experiments, both the experiment station and the plantation manager assumed responsibilities for the optimal management of a certain crop. Thus, Coolhaas made the experiment station a highly important link in the chain of export-crop production.

His amazingly swift grasp of situations and quick evaluation of people and the essence of problems enabled him to do an immense quantity of work in a few hours, and those who knew him only officially never could guess that after a day's work he went home almost exhausted, his health never having been very robust.

Moderate in speech and courteous in manners he avoided open conflicts, but a decision once taken on work or concerning people was never changed. He asked much of his staff members but considered them as good friends and comrades.

In 1939 war broke out in Europe and in May 1940 The Netherlands came under German occupation. Besides an entire change in the activities, this development meant that several of the staff members regularly had to report for active military duty. Thus, much of the fundamental research stagnated.

During the first one and a half years of the Japanese occupation, the experiment station continued its tasks in obedience to the official order of the Dutch Indies Government "to the benefit of the country and the population, thereby holding aloof of giving aid to the enemy". This procedure worked of course, insofar as the occupational forces permitted visits to the plantations, but it was Coolhaas, who, within the possibilities, stayed at his post at his experiment station and who organized the clandestine funds in aid of the relatives of those of his colleagues who became prisoners of war.

In 1943 all Europeans in East Java became interned, but immediately after the Japanese capitulation Coolhaas returned to Malang to find the experiment station undamaged, although highly neglected. A few weeks later, however, the Indonesian rebellion caused the destruction of part of the town of Malang, the Europeans were captured and Coolhaas again became interned for more than half a year.

After having been liberated through the intervention of the Red Cross, he went on leave to The Netherlands for recuperation in 1946, but shortly afterwards he returned to Indonesia. As always, he remained optimistic and accepted the post of General Director for the Experiment Station Service for perennial upland crops. One year later, however, he repatriated, convinced that at least for the first couple of years and until quiet and order would be restored in Indonesia, regular research on the plantations in a modern sense would be impossible.

In that respect, he felt that more useful tasks were waiting in The Netherlands. And indeed, how right he was! In October 1948 he took up his appointment as Professor of Tropical Plant Husbandry at the Agricultural State University.

Coolhaas perceived immediately that agricultural education in Wageningen for the tropics had to be changed. As formerly all education had been directed to filling posts in the former Dutch East Indies, now the education had to be viewed in a wider sense, that is to say, that it had to cover the tropics and subtropics of the whole world. He also saw that personal contacts had to be established in order to create outlets for graduates in these regions. Mainly to serve this purpose but also for his own information he made several study tours to Africa and South America. He also perceived the role photoperiodism would come to play in research in and for the tropics. Under his direction, the laboratory in Wageningen was provided with equipment to enable research on the influence of photoperiodism on several tropical crops such as rice, sesame, *Sorghum* and *Vigna sinensis*. For other photoperiod sensitive plants, growth chambers were installed where the influences of temperature and/or humidity on plant behaviour could be studied. Several doctoral theses were the result of this farsighted policy.

His first trip to West Africa led to the foundation of the "Centre Néerlandais" at the ORSTOM centre at Adiopodoumé, Ivory Coast. His trip to Surinam stimulated the foundation at Paramaribo of a section of the Wageningen University.

After the independence of Indonesia, Coolhaas took a large share in the development of agricultural research in the former Dutch New Guinea: under the aegis of the Foundation for Agri-

cultural Research in Dutch New Guinea, a foundation erected on his instigation, the Agricultural Experiment Station at Manokwari was founded.

Next to his professorship he was a member of several committees and advisory boards which dealt with agriculture and agricultural development in the tropics, and as such he assisted in drawing up plans. Among these bodies may be mentioned the "Koninklijk Instituut voor de Tropen", the "Wetenschappelijk Onderzoek in Suriname en de Nederlandse Antillen", the "Afrika Instituut", the above-mentioned "Stichting Agrarisch Onderzoek in Nieuw Guinea" and the editorial committee of the *Netherlands Journal of Agricultural Science*.

His very busy life did not leave him much time for publications but he succeeded nevertheless in rewriting the volume "Kaffee" of Sprecher von Bernegg's "Tropische und subtropische Weltwirtschaftspflanzen". The accidental death of his wife in 1956 gave a serious blow to his health. After a severe illness he recovered apparently a good deal, but in the course of the following years his health and endurance declined so much that he decided to resign from his professorship in 1961. Her Majesty the Queen of The Netherlands honoured Coolhaas by appointing him to be "Ridder in de orde van de Nederlandsche Leeuw".

Coolhaas was highly respected by all who came in contact with him. He had many friends. They all knew how he was, a keen, sometimes very caustic, but honest fighter, always himself, averse from making a show. As a very active Rotarian he was a personification of the Rotary ideal: to serve in friendship and fellowship. Even in his last days his house remained the place where friends, former co-workers as well as former students came to discuss their problems.

His death is felt as a great personal loss, not only by his family but also by all his friends, not least by those who knew and worked with him during his career in the former Dutch East Indies. An honest soul, who knew to live, passed away.

May he rest in peace.

Some friends