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Chemistry—A Prime Mover of the Economy

The chemical industry has in the past played a major role in the economic development in the Federal Republic of Germany, Switzerland and Austria. But will it continue to play this role in the future? The following articles give an answer to this important question.

Switzerland's World-Minded Chemical Industry

by Dr V. H. Umbricht, Delegate of the Board, CIBA Limited

The Swiss chemical industry displays what, borrowing from current political parlance, one might call a low profile on the international scene — certainly lower than the prominence the industry might claim on the basis of its performance. Apart from the well-known Swiss penchant for privacy, this is doubtless due in large part to the fact that Swiss chemical shares are not quoted on exchanges outside the country. Up to now the industry-watchers have therefore tended to concentrate their attention elsewhere.

With Europe expected to overtake the United States as the world's largest chemicals producing area by the mid-70s, this situation is likely to change shortly. Switzerland's industry has long been one of the world's

leading dyestuffs producer and ranks second only to the US in pharmaceutical innovation. Currently it is growing at an exponential rate. Promise, pains and publicity lie ahead.

A Value-adding Industry

Swiss industrial chemistry in its modern guise came into being with the advent of coal-tar dyes over a century ago. As Swiss industrial history is written it is thus comparatively young. Unlike the watch or textile industries it did not evolve from cottage crafts and was spared the fragmentation that still bedevils these branches. As a result, four international companies headquartered in Basle dominate the Swiss chemical scene: CIBA, Geigy, Hoffmann-La Roche and Sandoz. Roche, the youngest of

the "Big Four", is also the biggest and the only firm without an ancestry in colour chemistry. It is generally considered the world's largest "drug house" (Roche does not publish sales figures). All four companies consistently figure amongst the first 100 organisations on Fortune magazine's annual listing of the leading non-US industrials, and they also stand high in the Chemical Age compilation of the world's 200 ranking chemical undertakings.

Telegraphically formulated, Swiss chemistry is a signal example of a value-adding industry. Its generic resemblance to the organic chemical industry throughout the world deviates in two interesting respects: because of Switzerland's geographical position, it does not

enjoy (with the notable exception of Lonza, the fifth company domiciled in Basle) backward integration with the petrochemical industry; and, as regards forward integration, it manufactures neither synthetic fibres, for example, nor any of the numerous end products incorporating a CIBA speciality, thermosetting resins.

Yet the industry's knack for adding value and then marketing it has made the Swiss a competitor to be reckoned with on the world markets. The industry accounts for somewhat more than a fifth of Switzerland's exports (the 1969 figure was roughly \$ 1 bn), and today each of the aforementioned companies is a world organisation, with a network of affiliates on every continent.

Process of International Penetration

When one considers the premises, the build-up and sustained prosperity of these concerns is quite a remarkable achievement. The Swiss never enjoyed a domestic market sizeable enough to let them grow big and then go international, so they were already chasing up outlets abroad before the 19th century was out. Historically the pattern has been this: the opening up of a marketing channel through an agency in a growth territory; then, if the promise was redeemed, establishment of an own selling company, which in the typical instance would handle one range only at the beginning. Gradually other lines might be added, technical service laboratories set up, a pool of executive talent formed. The ultimate step in this systematic process of penetration—particularly in those countries where dependence on imports from the parent company is not feasible for a variety of familiar reasons—has been the construction of local manufacturing and

even research capacity. By this time a fully fledged and assimilated organisation has taken shape.

During the inter-war period this course of expansion was pursued primarily in the industrialised countries of the West; since the war it has been extended to South and East. In the process a different *modus operandi* has been adapted in numerous cases, above all as regards joint ventures. Jointly owned factories in Britain, the United States, Canada, Brazil and other countries are the product of a time when the Basle companies set up shop together abroad to attain greater investment and production efficiency. That arrangement has lost none of its validity, but subsequent ventures in the developing countries have had to be mounted under rules peculiar to those countries, especially the demand that a foreign entrepreneur go shares with local partners. At the same time, fortunately, the governments of the less developed countries have come to appreciate that private industry, whatever its provenance, cannot function if it fails to earn a reasonable profit, and that a country which fails to recognise this may cut off its nose to spite its face, depriving itself unnecessarily of the scientific and commercial expertise which can contribute to the making of a viable infrastructure, as well as going without quality goods and services which fill a real need.

Investments in Developing Countries

There are examples to prove that the Swiss are prepared to programme themselves to meet a developing country's government more than half-way. The basic insight in play here is that the provision of products alone, whether locally manufactured or imported, does not always suf-

fice to cover a non-industrialised nation's requirements. To take a case from the CIBA dossier, we devised a comprehensive project approach to the problem and first tried it out on a large scale in Indonesia. The successful example has since been copied, one is happy to observe. "Operation Rice", still continuing, comprises everything from preparatory studies of soil and climatic conditions to the provision of fertilizers, supervision of sowing, supplying of plant protection agents, technical advice to the farmers, arrangements for the transport of their greatly improved harvest, surveillance of the granaries, furnishing the aircraft used in spraying, and even the construction of landing strips. The company assumes responsibility for all these services under contract from the government. It is not an easy way to do business by any means, but must in the long term prove germane because it is attuned to the special conditions of the territory concerned and as such represents an imaginative form of technical aid.

What is happening here is that an industry has built a historical change into its view of the world and drawn the consequences. Obviously this presupposes a faith that the developing countries really can develop if industry helps them to do so and that new forms of symbiosis will mould the future.

Partnership and Diversification

As of now, however, the have-not countries are venture capital markets accounting for but a small percentage of the industry's world sales and even less of its returns. The key markets will remain the West and Japan, with Eastern Europe somewhere in between. How does the Swiss chemical industry propose to uphold and advance its position in these hotly contested markets? Succinctly stated, the two

principal instrumentalities are partnership and diversification.

Partnership can take a variety of forms, and nowadays it is not unusual for the Basle firms to join up with companies outside their own circle in establishing production, development or marketing capacity abroad. An example from the European scene is the collaboration between Hoechst and CIBA in fat metabolism research with special reference to arteriosclerosis. Overseas the list of partners is already long: Shell in Mexico, Dow in Japan, Atul in India, ICI in New Zealand, and so on.

Another example, suggesting quite a different departure, is the outline agreement on scientific and technical cooperation which CIBA and Geigy separately concluded with the Soviet authorities a few months ago. For the record let it be noted that acquisition has also become normal practice, notably in the swift build-up of a new area of operations.

Partnership, like charity, can also begin at home, however. Despite their deeply rooted sense of discrete identity and an innate distrust of bigness, the Swiss must come to terms with the fact that upholding their international position may entail a restructuring of the Basle-based constellation of companies. This prospect takes on particular force if one weighs the substantial capital investments that will have to be made in the 70s for the provision of research, production and service capacity adequate to keep pace with the expansive phase already underway. Overlapping is then likely to become a luxury no-one can afford. The position becomes clear if one recalls that the combined annual investment outlays of the Swiss—who make a practice of financing growth from their own cash flow—barely approach those of any of the

major German chemical companies.

Merging of CIBA and Geigy

As a result CIBA and Geigy are now poised to set foot on the merger road that, in Switzerland, was first taken by the machine industry. The calculation governing this step, naturally, is that the end effect will be synergistic. Yet a merger of the two will only just about place the new company in the same order of magnitude as that already attained by the former IG Farben firms. Bigness, in other words, is a relative matter. In their own league, at any rate, the Swiss are prone to consider consolidation on its functional merits alone, while the further question of across-the-border unions is, for the moment, hypothetical.

These straws in the wind all go to show that the Swiss retain their talent for planning and acting flexibly in the face of a rapidly moving situation. The same is true when applied to the diversification which increasingly extends their radius of action. The mainspring of this branching out are the innovations forthcoming from the research on which the Basler currently spend, at a conservative estimate, \$ 220 mn a year. But again, many roads lead to Rome. There is no common denominator under which the overall phenomenon can be subsumed, as a couple of indicative examples may illustrate. Sandoz has entered the field of dietetics through its absorption of Wander. Roche is exploring the potentialities of medical electronics in the US and also with Brown Boveri, the giant of the Swiss heavy engineering industry. CIBA has become involved in the "cassette revolution" in selective television through its new subsidiary Ilford, which is delivering the software for the Electronic Video Record-ing system.

At the same time one should not overlook the steady-stream diversification which proceeds apace within previously defined parameters — the ongoing enlargement of long-established lines and fresh approaches to formulating them. Roche's stunning record in psycho-pharmaceuticals, Geigy's contribution to the development of lubricants for supersonic aircraft (which has just won it a Queen's Award for technological innovation), or the entry of Sandoz into the hospital supply field exemplify the dynamics.

By developing new formulae for growth, then, the Swiss chemical industry is demonstrating its intention to remain a contender to be reckoned with on the world scene. But at the same time the Swiss are well aware of the many imponderables which lie ahead — not just the scramble for markets which is a fact of life virtually endemic to the industry, but also the further evolution of the European economic map and international trade policies, or the ramifications of a growing public concern for the environment and the impact of chemistry upon it. Tougher and tougher government standards regulating everything from affluent control to food additives are in the cards. Foresight and good business sense demand that the industry learn to act and not only react in response to these challenges, but that will mean assuming a burden of civic responsibility such as industrial chemistry has not been called upon to bear before.

In this situation the Swiss chemical industry's experience of the world should stand it in good stead. That and its reputation for scrupulous dealing are not the worst assets with which to face up to the opportunities and uncertainties awaiting the industry in the 1970s.