

GIUSEPPE OROMBELLI (*)

ARDITO DESIO AND THE ITALIAN GLACIOLOGICAL COMMITTEE (CGI)
A presentation given at the CGI meeting on November 21, 1997
to honour the 100th birthday of Ardito Desio

In 1995 an international congress held in Turin celebrated the first 100 years of glaciological research in Italy. The origins of the «Commission for the Study of Italian Glaciers», within the framework of the Italian Alpine Club (Cai), go back to 1895. Later, it became the «Italian Glaciological Commission» and, from 1915 onwards, the «Italian Glaciological Committee» (*Comitato Glaciologico Italiano*), which is an independent scientific board for the promotion of glaciological studies and the co-ordination of research on Italian glaciers.

Today we are celebrating another exceptional hundredth birthday: the 100 years of Professor Ardito Desio. The connexion between the two events is appropriate, since the long research activity of Prof. Ardito Desio is strictly intertwined with the Italian Glaciological Committee and glaciers.

Glaciers have been one of the main scientific interests of Prof. Desio who dedicated over thirty publications to this subject, including the volume on the Ortles-Cevedale glaciers to which I shall return later.

First of all, I would like to recall an episode which I consider emblematic. Late in the summer of 1953 Prof. Desio was with Mr. Cassin in Skardu, in the upper Indus valley, for a preliminary survey in preparation for the K2 climbing and scientific expedition. Local authorities informed him that in a nearby valley of Baltistan a glacier had advanced by about 12 kilometres in a few months, threatening several villages. They begged him to ascertain the magnitude of the phenomenon and possible risks for the population. Rather sceptical about such unheard of news, as usually advances of glacial fronts in mountain glaciers are measured in tens-hundreds m/year, Prof. Desio went to

the Stak Valley by forced march. He was overwhelmed by a frightening scene that he himself described in these terms: «a huge ice flow disrupted by many crevasses and pinnacles was spread, like a sort of monstrous reptile, over the floor of the Kutiah Valley, stretching as far as the green cover of the woods». According to local eye-witnesses the glacier had advanced by about 12 km in only three months, with an average velocity of over 100 m/day. This is two orders of magnitude greater than that of the fastest Alpine glaciers.

Prof. Desio promptly reported the phenomenon in an article that was published the following year in the *Journal of Glaciology*. This was one of the first descriptions of a glacial surge, which is a propagation of a high glacial wave, with depletion of the accumulation basin, bulge and the final rushing advance of the terminal tongue. This phenomenon of sudden instability, that is unknown in the Alps, at least in the last century, would also later be recognised in other mountain ranges and was the origin of a passionate scientific debate at the end of the 1960s. This ultimately led to a better understanding of glacier dynamics. Similar events, on a larger scale, also took place during the final phases of the last glaciation, with violent climatic consequences affecting the whole Earth. It has also been suggested that similar phenomena could affect part of the Antarctic ice sheet, which in turn would have serious effects on the Earth climate and sea level.

It was therefore thanks to Prof. Desio's promptness, intuition, scientific curiosity and, why not say, audacious initiative that this kind of phenomenon was first reported in the modern glaciological literature. It has since been recognised in many other places, aided by means of remote sensing imagery and the transport facilities that are available today, enabling access to the Earth's remotest regions.

Prof. Desio's interest in glaciers came from his love for his homeland: the region of Friuli. When A. Desio was

(*) Dipartimento di Scienze dell'Ambiente e del Territorio, Università di Milano.

about twenty years old, encouraged by the great geographer Marinelli, he started to carry out systematic observations on the Canin and Montasio Glaciers, which were published in the Friuli review *«In Alto»* to which he is still deeply linked. This was during the early 1920s when A. Desio was a student at Florence University and had just begun his geological research on the Dodecanese islands. The sunny, Mediterranean environment of the Aegean islands was in extreme contrast with the rugged, challenging one of the high Alps, but it showed early on the eagerness for geographical and geological explorations, which was a constant feature of the whole scientific life of Prof. Desio.

Prof. Desio has not been a scientist specialised in a narrow region or a particular scientific problem. Without losing any insight and precision, Prof. Ardito Desio has always realised that in order to be properly investigated, the vastness of the Earth allows limitless horizons of investigations that alone can provide the experience necessary for properly interpreting geological and geographical phenomena.

After moving to Milan in 1925, to the Museum of Natural History, Desio concentrated his glaciological interests on the central Alps and, in particular, on the Ortles-Cevedale Group, owing to its great number of glaciers. He started a series of annual glaciological field surveys and investigations, later followed by those of his collaborators. In this way an important archive of data and observations was collected throughout the years. Prof. Desio always remained faithful to this self-assigned task, notwithstanding his numerous engagements and scientific expeditions to the mountains of central Asia, the Libyan desert, and the Ethiopian highlands, and without considering his innumerable consulting commitments for the promotion of Italian geology.

In 1932 Prof. Desio became a member of the Italian Glaciological Committee, of which he is now an honorary member. As reported in the minutes of the Committee, he distinguished himself by his diligent, active and enthusiastic participation. He was appointed chairman of the Italian Glaciological Committee in 1967, when he succeeded Prof. Giulio De Marchi, and kept the post until 1975. Prof. Desio provided a new impulse to the Committee's publications (the well known *«Bollettino del Comitato Glaciologico Italiano»*), organised the committee's activities according to thematic study groups, and favoured contributions of new scientific and technological competence. He also encouraged the traditional activity of glaciological annual surveys, favouring the development of investigations on glacial mass balance, which are of paramount importance, including also from the standpoint of glacier exploitation as an energy resource. In 1970 the first Italian Glaciological Congress was organised in Bormio, with the presentation and discussion of several papers, and excursions to the Gran Zebrù and Cedech Glaciers. Another three congresses have been held in subsequent years in Courmayeur in 1971, in Trento in 1973 and in Udine in 1975.

During the chairmanship of Prof. Desio the volume on the Ortles-Cevedale glaciers was published (1967), with the financial contribution of the Italian National Research

Council (Cnr) and the collaboration of Severino Belloni and Augusto Giorcelli. It is a vast monograph work with over 800 pages accompanied by a second volume with over 200 photographs. An updated and summarised edition, in Italian and English, was later published (1973), with the collaboration of S. Belloni, A. Giorcelli and G. Zanon. This work is a *«corpus»* of analytical information, pictorial documentation, climatic, hydrological and glaciological elaboration and theoretical contributions, which has no equal in Italian glaciological literature. Even after so many years, we can still appreciate Prof. Desio's decision to document with continuity and by all possible means the changes of a homogeneous glacier population in the Italian Alps. As he himself wrote, the observations that started in 1925 already showed in the years immediately afterwards that «glaciers were in a retreat phase, which suggested the beginning of a general climatic variation».

Prof. Desio has therefore kept pace with and recorded nearly a century of glacial changes. After the phases of glacial advance that have characterised the three previous centuries (the so called «Little Ice Age»), which culminated in the Italian Alps in around 1820 and again in around 1850, in the second half of the 19th century a retreat phase was recorded, which was interrupted only by an advance phase at around 1890. A retreat then followed, which was interrupted by a new advance phase in about 1920-25. Although glacial fronts had retreated from the positions occupied around the mid-19th century, the two re-advance phases could have given the illusion, at the beginning of the 20th century, that nothing substantial had occurred from the climatic point of view.

By contrast, this century, which is now drawing towards its end, bears witness to a substantial retreat of mountain glaciers all over the world in response to a noticeable increase of atmospheric temperature. Also, the phase of re-advance, that took place from the mid-1960s to the mid 1980s, appears as an aborted attempt to reverse the general tendency of retreat, which started again and has progressed constantly from the mid-1980s onwards. Therefore, a general climatic variation has begun, which has reduced our glaciers to their minimum extent in the last 5000 years.

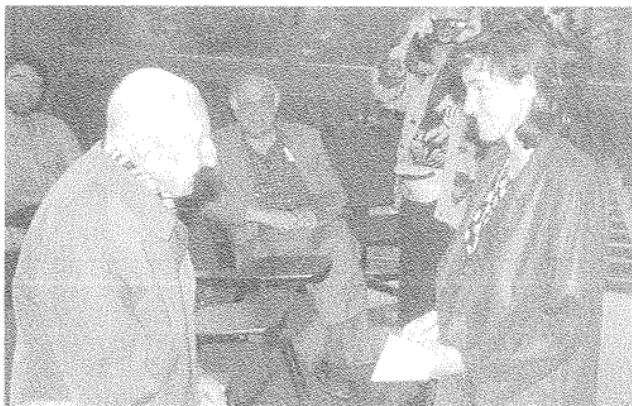
Apart from Alpine glaciers, Prof. Desio studied or described the Karakorum and Iranian glaciers. He was also a pioneer in Antarctic studies, and already in the 1950s he had realised the scientific importance of the ice continent, where glaciological problems assume dimensions of global interest. For our country it was a missed opportunity not to have allowed Prof. Desio to start an Antarctic programme. This was finally only achieved in 1985, with a remarkable delay in respect to other countries. It is now our own responsibility to recover that lost time by drawing our strength from the great example that Prof. Desio has given us and that he still embodies. We, his disciples and followers, must therefore follow his example in order to contribute to the advancement of Italian glaciological studies.

We are celebrating Prof. Ardito Desio because of this flag that he has fixed on the peak of his 100 years, after a life of indefatigable and continuous activity rich in achieve-

ments which never made him completely satisfied with the peaks reached, but rather stimulated him to look for higher ones. I express the wish that he may still continue along his path, perhaps on a gentler slope on top of a high and wide mountain, as Desio himself wrote about Compagnoni and Lacedelli when they conquered K2: «they saw little by little the slope running away from them, while the view gradually opened on all the horizon».

N.B. Quotations have been taken from:

DESIO A. (1987) - *Sulle vie della sete dei ghiacci e dell'oro*. De Agostini, Novara.



Prof. Ardito Desio awards Mrs. Barbara Cagnazzi (University of Turin) the C.G.I. prize for a glaciological dissertation (Milano, November 21, 1997).

ARDITO DESIO

GLACIOLOGICAL PUBLICATIONS

- *Il Ghiacciaio del Montasio*. In Alto, anno XXXI, pp. 21-22, Udine, Agosto-Dicembre 1920.
- *Osservazioni glaciologiche nelle Alpi Carniche e Giulie*. In Alto, anno XXXII, n. 1-3, pp. 1-10, Udine 1921.
- *I Ghiacciai del Canin e del Montasio*. (Osservazioni del 1921). In Alto, anno XXXII, n. 4-6, pp. 54-69, 1 tab., Udine 1921.
- *Su di una particolare forma di ghiacciai delle Alpi Venete*. Atti dell'VIII Congr. Geogr. It., vol. II, pp. 42-46, 2 tav., 2 fig., Firenze 1921.
- *I Ghiacciai del Canin e del Montasio (Alpi Giulie)*. (Osservazioni del 1922). In Alto, anno XXXIV, n. 1-3, pp. 1-4, Udine 1923.
- *I Ghiacciai del Canin e del Montasio (Alpi Giulie)*. (Osservazioni del 1923). In Alto, anno XXXV, n. 1-3, pp. 2-5, Udine 1924.
- *Le condizioni dei ghiacciai del Canin nel 1925*. In Alto, anno XXXVII, n. 3-6, pp. 77-80, Udine 1926.
- *Rocce e ghiacciai del gruppo Ortles-Cevedale*. Pubbl. Sez. Milano del C.A.I., Op. in 8° di 24 pp., 2 fig., Milano 1926. (In coll. with E. Mariani).
- *Le variazioni dei ghiacciai del Canin nell'ultimo quarantennio*. In Alto, anno XXXIX, n. 1-4, pp. 1-12, 1 fig., Udine 1927.
- *Appunti ed osservazioni sui ghiacciai del gruppo Ortles-Cevedale*. Atti Soc. It. Sc. Nat., vol. LVI, fasc. 3-4, pp. 209-272, 1 map, Milano 1927.

- *Nuove ricerche sui ghiacciai del gruppo Ortles-Cevedale*. (Campagna del 1927). Atti Soc. It. Sc. Nat., vol. LXVII, fasc. I, pp. 98-124, 6 fig., Milano 1928.
- *Sull'esistenza di piccoli ghiacciai nella Persia Occidentale*. Boll. Comit. Glaciol. It., n. 14, pp. 39-52, 11 fig., Torino 1934.
- *Relazione preliminare sullo studio idrologico-glaciologico del Ghiacciaio del Careser (Gruppo Ortles-Cevedale)*. Pubbl. 132 dell'Ufficio Idrogr. Magistr. Acque di Venezia, pp. 9-19, 8 fig., 1 tab., Roma 1934. (In coll. with G. Pisa).
- *Sull'esistenza di piccoli ghiacciai in Persia e sulle tracce di espansioni glaciali quaternarie*. C.R., Congr. Intern. de Géogr. de Varsovie, vol. II, pp. 216-218, Varsovie 1936.
- *Presentazione della relazione preliminare dell'Ufficio del Magistrato alle Acque di Venezia sullo studio idrologico-glaciologico del Ghiacciaio del Careser (Gruppo Ortles-Cevedale)*. Ibidem, pp. 223-224, Varsovie 1936.
- *La Spedizione Italiana ai Monti della Persia 1931*. Boll. Club Alpino It., vol. XLIII, n. 76, pp. 39-74, 2 maps, 1 tav., Roma 1936. (In coll. with G. Polvara, A. Prosperi, L. Bonzi).
- *Relazioni delle Campagne Glaciologiche del 1936*. Boll. Comit. Glaciol. It., n. 17, pp. 207-208, Torino 1937.
- *Relazione della Campagna Glaciologica del 1937. Gruppo Ortles-Cevedale*. Boll. Comit. Glaciol. It., n. 18, pp. 203-220, Torino 1938.
- *Relazione della Campagna Glaciologica del 1938. Gruppo Ortles-Cevedale*. Boll. Comit. Glaciol. It., n. 19, pp. 207-211, Torino 1939.
- *Il Baltoro*. Le Alpi, vol. LIX, n. 10-11, pp. 447-479, 1 fig., Roma 1940.
- *Relazione della Campagna Glaciologica del 1939. Gruppo Ortles-Cevedale*. Boll. Comit. Glaciol. It., n. 20, pp. 186-188, Torino 1940.
- *Relazione sulla Campagna Glaciologica del 1941. Gruppo Ortles-Cevedale*. Boll. Comit. Glaciol. It., n. 22, pp. 66-68, Torino 1943.
- *Relazione della Campagna Glaciologica del 1942*. Boll. Comit. Glaciol. It., n. 23, pp. 119-120, Torino 1945.
- *Recent fluctuations of the Italian glaciers*. Journ. Glaciol., 1, n. 8, pag. 421, London 1950.
- *Per una classificazione dei ghiacciai alpini*. Atti XV Congr. Geogr. It., Torino, Aprile 1950, vol. I, pp. 234-243, Torino 1951.
- *Sull'eccezionale avanzamento di un ghiacciaio himalayano*. Rend. Accad. Naz. Lincei, ser. 8°, vol. XV, fasc. 5, pp. 253-255, Roma 1953.
- *An exceptional glacier advance in the Karakorum-Ladakh region*. Journ. Glaciol., vol. 2, n. 16, pp. 383-385, Cambridge 1954.
- *Glaciological research of the Italian Karakorum Expedition 1953-1955*. Pubbl. n. 54 of the IASH, Snow and Ice Commission, 1961, pp. 224-232, 5 fig., Gentbrugge 1961. (In coll. with A. Marussi e M. Caputo).
- *L'Antartide e le ricerche scientifiche*. La Ricerca Scientifica, anno 34, ser. 2°, Parte I, vol. 4°, n. 3-4, pp. 92-123, 23 fig., Roma 1964.
- *I ghiacciai del gruppo Ortles-Cevedale (Alpi Centrali)*. Vol. di 874 pp., 130 fig., 207 tables and Glaciological map, scale 1:50.000. Comitato Glaciologico Italiano, Torino 1967. (In coll. with S. Belloni, A. Giorcelli).
- *Ghiacciai*. In: *Geologia Applicata all'ingegneria*. 3° Ed., pp. 252-268, 5 fig., Hoepli, Milano 1973.
- *Results of Half-a-Century Investigation on the Glaciers of the Ortles-Cevedale Mountain Group (Central Alps)*. In English and in Italian. Vol. di 107+107 pp., 28 fig., 8 tab., C.N.R., Roma 1973. (In coll. with S. Belloni, A. Giorcelli & G. Zanon).
- *Una visita al Ghiacciaio Kutbiab nel Karakorum Centrale (Pakistan)*. Boll. Comit. Glaciol. It., n. 22 (1974), pp. 39-44, 3 fig., Torino 1975.
- *I ghiacciai del versante valtellinese del gruppo dell'Ortles-Cevedale: ricerche e ricordi*. Notiziario della Banca Popolare di Sondrio, n. 13 - Aprile 1977, pp. 40-45, 7 fig., Sondrio 1977.
- *L'Antartide*. Vol. di 248 pp., 53 fig., 24 tav., 1 geographical map, Utet, Torino 1984 (in coll. with F. Benuzzi, M. Caputo, P. Dominici, G. Fea, P. Lezano, M. Manzoni, S. Ranzi, C. Stocchino, R. Tomaselli, O. Vecchia, G. Vedovato).